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SYNONYMIC NOTES (LEPID., PHALÆNIDÆ)

BY WILLIAM BARNES AND F. H. BENJAMIN
Decatur, Illinois

Through the kindness of Mr. W. H. T. Tams we have received a copy of "Notes on the Synonymy of Some Noctuidæ" published 1926, Encyclopedie Entomologique, Lepidoptera, I, Fasc. 4, pp. 183-185. In this paper Mr. Tams has published notes of great value on the types of some heretofore unplaced or misapplied names. As this paper seems unavailable to most American workers, we think best to call attention to the new synonymy in relation to North American species.

"AGROTIS" ANTEPOSITA Gn.

1852, Guenée, Spec. Gén., V, Noct., I, 278, *Agrotis.*

Mr. Tams remarks that the Paris Museum type is a fragment of the thorax bearing two wings on one side. He states it is certainly not *Feltia annexa* Treit., and thinks it may be *"Lycophotia" messium* Gn.

As the species was described from two specimens, one of which was in the Boisduval collection, the second type may possibly be in existence and may be in condition to allow positive determination.

HADENA[1] LUTRA Gn.

1852, Guenée, Spec. Gén., VI, Noct., II, 94, *Hadena.*
1906, Hampson, Cat. Lep. Phal. B. M., VI, 333, *sepultrix, Eumichtis.*

1 Hadena Schr., type Phalæna cucubali D. and S. Much has been written regarding Hadena and its type. Duponchel, 1829, Lep. Fr., VII, (2), 71, cited genistæ, but this is not an included name. Curtis, 1830, Brit. Ent., I, 308, cited capsinicola also a non-included name. Boisduval, 1836, Sp. Gen., I, 135, cited dentina and on page 144 cited satura, both non-included names. Westwood, 1840, Gen. Syn., page 95, cited plebeia, a non-included name. Guenee, 1852, Sp. Gen., VI, 81, cited w-latinum presumably for synonym genistæ following Duponchel, but neither name included in Schrank's generic description. Grote, 1874, Bull. Buff. Soc., II, 14, did not designate a type, but in 1895, Ent. Rec., VI, pages 78 and 284, cited cucubali, which he also cited in several subsequent papers. Hampson, 1894, Fauna Brit. Ind., Moths, II, 198, designated type cucubali, the first designation of an included name which we have been able to find. Hampson, 1903, Cat. Lep. Phal., IV, 4, cites type reticulata presumably for synonym typica Auct. and Hbn. nec L., and repeats the citation 1905, l. c., V, 208. Warren, in Seitz, III, 79, follows Hampson.

Fortunately the prior designation of cucubali eliminates the nomenclatorial question if typica Auct., a probable misdetermination,

1926, Tams, Encyc. Ent., Lepid., I, (4), 184, (= *glaucopis*), *Polia.*
‡ *brassicæ* Auct. nec L.
1873, Grote, Bull. Buff. Soc. Nat. Sci., I, 104, *Mamestra.*
lubens Grt.
1875, Grote, Trans. Am. Ent. Soc., V, 113, *Mamestra.*
rufula Morr.
1875, Morrison, Proc. Acad. Nat. Sci. Phila., p. 62, *Mamestra.*
race glaucopis Hamp.
1905, Hampson, Cat. Lep. Phal. B. M., V, 106, pl. LXXXI, 6, *Polia.*

We know of no good character to sort *glaucopis,* which is only western *lubens,* from typical *lubens.* Western specimens are often darker in color than some eastern specimens, but the character does not hold for any series.

Mr. Tams reports *lutra* as being from North America instead of from New Holland. In view of the early date of the Guenée name, the comparative rarity of *glaucopis* in collections, the fact that we cannot tell *glaucopis* from *lubens* with any certainty save from locality labels, coupled with the fact that two other supposedly New Holland species described by Guenée from Paris Museum material turn out to be from eastern North America, leads us to think that *lutra* is, in all probability, based on an example of eastern *lubens lubens* rather than *lubens glaucopis.*

MYTHIMNA[2] MARYX Gn.

1852, Guenée, Spec. Gén., V, Noct., I, 344, *Ceramica.*
1905, Hampson, Cat. Lep. Phal. B. M., V, 610, unrecog., *Ceramica.*

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could possibly become a genotype, to say nothing of this resting solely on the strength of the citation of reticulata which is a non-included name.

McDunnough, 1916, Ent. News, XXVII, 395, follows Grote, but does not use the name for North American species for taxonomic reasons.

In all probability lutra (lubens) is not strictly congeneric with cucubali, but quite a number of the species assigned to "Polia" by Hampson and McDunnough do seem to belong, so that we simply substitute Hadena for "Polia," following Hampson's taxonomy, until some logical division of "Polia" is proposed. In reality Polia is a Tentamen genus of Cucullinæ, instead of belonging in the Hadeninæ.

[2] Mythimna Ochs., type Phalæna albipuncta D. and S. We cannot agree with Dr. McDunnough's citation of oxalina as type based on a "restriction" method of fixation (1916, Ent. News, XXVII, 395). By this method the type would appear to be acetosellæ D. and S., that name as well as oxalina being listed by Hubner (Verz.), and designated by Grote, 1874, Bull. Buff. Soc., II, 24. We have found no designation of oxalina prior to 1903, Hampson, Cat. Lep. Phal., IV, 602. Hampson cited oxalina following his "first species" rule, and in this is followed by Warren, in Seitz, III, 61. Westwood, 1840, Gen. Syn., page 94, cited turca, but this was ultra vires in view of the fact that Duponchel, Lep. Fr., VII, (2), 71, had designated type albipuncta. Guenée, 1852, Spec. Gen., V, Noct., I, cited imbecilla = disparilis. Barnes and Benjamin, 1926, Ent. News, XXXVII, 79, cited type albipuncta following Duponchel.

1926, Tams, Encyc. Ent., Lep., I, (4), 184, (= *rubefacta*), *Sideridis.*
rubefacta Morr.
1874, Morrison, Can. Ent., VI, 249, *Ceramica.*
‡ *vindemialis* Grt. (nec Gn.).
1875, Grote, Proc. Acad. Nat. Sci. Phila., 418, *Mamestra.*
1880, Grote, Can. Ent., XII, 185, (partim.), *Mamestra.*
1881, Grote, Can. Ent., XIII, 124, (partim.), *Mamestra.*
1905, Hampson, Cat. Lep. Phal. B. M., V, 442, *rubefacta, Sideridis.*

Grote, 1875, described *vindemialis* n. sp., 1880 and 1881. Grote credits authorship to Guenée. We cannot state if the 1875 n. sp. is an accident, or if Grote had previously determined a Thaxter specimen as the Guenée species and later forgetting the existence of the Guenée names published as "n. sp." There are two species much alike in superficial appearance but differing structurally.[3]

PLATYPOLIA [4] ANCEPS Steph.

1850, Stephens, Cat. Lep. B. M., p. 285, *Miselia.*
1918, Barnes and McDunnough, Contrib., IV, (2), 101, *Eurotype.*
‡ *polymita* Auct. nec L.
1829, Stephens, Ill. Brit. Ent., Haust., III, 31, pl. XXVI, 2, *Polia.*
acutissima Grt.
1875, Grote, Check List Noct. Am., p. 23, pl. I, 9, *Pachypolia.*
form aplectoides Gn.
1852, Guenée, Spec. Gen., VI, Noct., II, 83, *Hadena.*
1926, Tams, Encyc. Ent., Lepid., I, (4), 185, (= *medialis*), *Eurotype.*
confragosa Morr.
1874, Morrison, Proc. Bost. Soc. Nat. Hist., XVII, 138, *Polia.*
medialis Grt.
1876, Grote, Ann. Lyc. Nat. Hist. N. Y., XI, 306, *Polia.*

The specific synonymy has been explained by Barnes and McDunnough, 1918, save for the name *aplectoides*. Mr. Tams states this latter name, based on another "New Holland" type in the Paris Museum, is the same as *medialis* Grt.

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3 We possess a specimen from Florida which agrees well with Hampson's figure of vindemialis Gn. (1905, Cat. Lep. Phal. B. M., V, 445, pl. XCI, f. 2 type). The name has been omitted from the Barnes and McDunnough check list because Hampson stated that the locality, Florida, given by Guenée, was presumably an error and that the species probably came from New Zealand. We tentatively place vindemialis Gn. in Barathra Hbn., type albicolon Sepp cited by Grote, 1895, Abh. Nat. Ver. Bremen, XIV, 71. According to Hampson's taxonomy Barathra will replace Trichoclea. We have had no opportunity to study the European albicolon in relation to North American species.

4 See Barnes and Benjamin, 1926, Pan.-Pac. Ent., III, 71, for generic synonymy.

NEW PHALÆNIDÆ (LEPID.)

BY WILLIAM BARNES AND F. H. BENJAMIN
Decatur, Illinois

Mesembragrotis Barnes and Benjamin, gen. nov.

Type *Mesembragrotis ruckesi* sp. nov.

Proboscis fully developed; palpi upturned, extending about equally with the frontal armature, the second joint scaled and not conspicuously fringed with hair, the third, moderate, porrect; frons with a truncate conical prominence with a flat vertical corneous process at middle like a beak; eyes rounded, naked, unciliated; antennæ of male scarcely serrate, fasciculate, laterally doubly fasciculate from each joint; antennæ of female simple, ciliated; head and thorax clothed with broad serrate scales, with very little hair; prothorax with a slight spreading crest; mesothorax with double tufts; metathorax with a large scale tuft; all tibiæ strongly spined, the fore tibiæ also armed distally with two heavy claws on each side. Fore wing with veins 3 and 5 from close to the angle of the cell, 6 from somewhat below upper angle; 9 from 10, anastomosing with 8 to form the areole; 11 from cell. Hind wing with veins 3, 4 from angle of cell; 5 obsolescent from somewhat below middle of discocellulars; 6, 7 stalked or connate, variable individually.

Presumably allied to *Mesembreuxoa* Hamps. but differing on palpi, antennæ, vestiture, and probably also on tibial armature.

Mesembragrotis ruckesi Barnes and Benjamin, sp. nov.

Head and thorax mixed black, rufous and ochreous; collar with more or less of a transverse black stripe. Fore wing with ground color grayish ochreous, more or less heavily shaded and powdered by black and appearing quite dark; basal line indicated on costa; t. a. line blackish, waved; claviform long, black outlined; orbicular irregularly ovate, variable in exact shape, black outlined; reniform irregular, whitish, black outlined, with more or less of a dusky crescent which may or may not have a paler center; t. p. line black, produced to points on the veins, bent outward on costa, more or less incurved in discal fold, and more strongly so in submedian fold; s. t. line dentate, outwardly defined by a pale shade; a terminal series of black points. Hind wing white tinged with fuscous especially on veins and toward the termen.

The species has much the appearance of a *"Euxoa"* of the *tessellata* group.

Type locality: near **Alpine, Texas** (O. C. Poling).

Number and sexes of types: Holotype ♂, 1-7 September, 1926; allotype ♀, 22-31 August, 1926; 6 ♂ 10 ♀ paratypes, 22-31 August and 1-7 September, 1926.

NACOPA B. and Benj.
Type *Acopa bistrigata* B. and McD.

1924, B. and Benj., Contrib., V, (3), 151.

We commented upon this genus in our original description. The types of *bistrigata,* and only examples known to us were both rather poor and considerably rubbed. From a series of another species, described below, and which seems surely closely allied, we would now place the genus in the Cuculliinæ, as the eyes appear distinctly lashed, the lashes long but probably easily broken off.

In the Cuculliinæ Nacopa seems to have no close allies. We are inclined to place it near *Euros* Hy. Edw. mainly because of its Heliothid habitus.

Nacopa melanderi Barnes & Benjamin, sp. nov.

Male. Mouse gray irrorated with white; fore wing with basal line as a white dot on costa; t. a. line as a white w-mark; t. p. line white, nearly erect, joined by a curved white mark in cell which takes the place of a reniform and isolates an irregular spot of ground color; s. t. line white, waved from costa to inner margin; fringe pale, checkered. Hind wing pale gray.

What we take to be females of the same species are two specimens possessing exactly the same markings as the males, but with the ground color bright rufous.

The species is closely allied to *bistrigata,* but the male antennæ are strongly serrate. In *bistrigata* there appears to be only two transverse white bands because the upper part of the t. p. and the lower part of the s. t. lines are practically obliterated, while the upper part of the s. t. line is practically joined to the lower part of the t. p. line, thus parts of two lines form a single line. The name *bistrigata* is obviously based on this line and the t. a. line. *N. melanderi* clearly shows three distinct transverse white lines isolated by ground color.

Type locality: near **Alpine, Texas** (O. C. Poling).

Number and sexes of types: Holotype ♂, 8-14 July, 1926; allotype ♀, 1-7 April, 1926; 13 ♂ 1 ♀ Paratypes, various dates of May and July.

"Polia" buscki Barnes and Benjamin, sp. nov.

Hair on eyes present but rather sparse.

Male. Antennæ ciliated, the joints slightly marked. Ground color of head, thorax and fore wing dull olive gray tinged with brown and

irrorated with black; base of wing blackish; basal line irregular, mainly visible as a filling of ground color; t. a. line waved; orbicular round, minute, more or less obsolescent, surrounded by a black ring; reniform large, poorly defined, almost as a blotch; median area of wing black; t. p. line produced to points on the veins, oblique on costa, excurved about cell, incurved in submedian fold; s. t. line waved, pale, inwardly marked by some black more or less tending to form sagittate marks, outwardly marked by diffuse black shades; an obsolescent terminal line; fringes luteous at base, with black interline and checkering, and pale tips. Hind wing nearly pure white, without discal spot or transverse line, the veins slightly tinged with fuscous. Beneath: white, powdered with fuscous along costal margins.

Female. Similar, but with hind wing more clouded with fuscous.

We know of no closely allied North American species, and suggest placement following *marinitincta.*

Expanse: 30-31 mm.

Type locality: near **Alpine, Brewster Co., Texas** (O. C. Poling).

Number and sexes of types: Holotype ♂, 15-30 May, 1926; allotype ♀, 8-14 May, 1926; 1 ♂ paratype, 8-14 July, 1926; 2 ♀ paratypes, 22-30 May, 1926.

ON THE IDENTITY OF ASTHENA LUCATA GN. (LEPID., GEOMETRIDÆ)

BY WILLIAM BARNES AND F. H. BENJAMIN
Decatur, Illinois

This species was described by Guenée, 1857, Spec. Gén., IX, 437, based on a single female from Canada.

A female, figured by Oberthur (f. 3398), is in the Barnes collection. It bears labels "Canada," "ex Musæo Ach. Guenée," "Typicum Specimen." This specimen agrees well with the original description which is decidedly violated by the species heretofore placed as *lucata.* We think it is the type. It is in rather poor condition, without body or hind legs. We have seen no other examples like it. It belongs to the group with single accessory cell, twelve veins to the primary, unarmed fore tibiæ, m. d. c. vein of hind wing nearly erect, short palpi, and dark frons. It has much the markings and appearance of a pale *Hydrelia inornata,* but with the size of *Venusia cambrica.* Tentatively we leave the species in *Hydrelia.* The name *condensata* Wlk. becomes available for *lucata* Auct. nec Gn.

TEN NEW LEPIDOPTERA FROM MEXICO

BY HARRISON G. DYAR
United States National Museum
Washington, D. C.

HESPERIIDÆ

Oarisma era Dyar, n. sp.

Wings black above, the margins bright orange, cut by the veins; on fore wing the terminal third is invaded by the orange color, becoming faint at tornus; hind wing less broadly orange, disappearing below vein 2. Below the orange of fore wing is broader costally, shaded, only slightly cut by black veins; hind wing dark brown, the veins powdery white lines, the orange touching the margin and running deeply toward base along submedian fold. Expanse, 32 mm.

Three specimens, **Contepec, Michoacan, Mexico,** September and October, 1926 (R. Müller).

NOCTUIDÆ

Eripoyga lathen Dyar, n. sp.

Dark brown; fore wing dark brown with yellowish under tint; subbasal and inner lines black, narrow, waved, obscurely doubled, slightly paler filled; outer line sharply crenulate on the veins, with a faint outer uncrenulate doubling line, slightly paler filled; claviform scarcey indicated; orbicular round, slightly paler filled; reniform similarly paler filled, but largely obscured by a median black shade-line, which is angled in the reniform at a minute white speck in its lower corner; subterminal line yellowish, powdery, a little flexuous, emphasized by little black cuneiform dashes, small below, more distinct but short opposite cell; termen somewhat darker shaded, pale terminal line and dark fringe. Hind wing dark brown without discal lightening; fringe contrastingly paler, yellowish, brown irrorate. Expanse, 30 mm.

Type, female, **Contepec, Michoacan, Mexico,** October, 1926 (R. Müller).

Hyssia stellipars Dyar, n. sp.

Dark gray; fore wing dark gray; subbasal half line and inner line black, double, coarsely crenulate; a narrow black line from base along submedian fold to location of obsolete claviform; orbicular and reniform large, black outlined, concolorous filled; orbicular somewhat oblique, reniform pale filled above, below with the median black shade which runs obliquely from costa, narrow below and parallel to the outer line; veins minutely white powdered, two white streaks beyond reniform at bases of veins 4 and 5; outer line narrow, black followed by a narrow pale area; terminal space rather darkly shaded, the subterminal line black irregularly dentate shaded; a black terminal line with pale points. Hind wing whitish over the

disk, veins and margin broadly dark gray; fringe whitish interlined with dark. Expanse, 24 mm. Male antennæ simple.

Type, male, **Contepec, Michoacan, Mexico,** October, 1926 (R. Müller).

Pseudacontia tricircula Dyar, n. sp.

Wings narrow, elongate, rather squarely cut. Light gray; fore wing light gray, darker basally, costally and terminally, finely irrorate; inner line far from base, slender, black, straight across wing; claviform, orbicular and reniform rounded, neatly outlined in black, concolorous filled, claviform touching inner line, ovate; reniform with a dark central cloud; outer line slender, black, single, looped out beyond reniform which nearly touches it; veins indistinctly dark lined outwardly; subterminal line obsolete; a narrow black terminal line; fringe paler, spotted with gray. Hind wing white, with traces of a gray terminal line apically and faint submarginal dots on the veins. Expanse, 32 mm.

Type, male, **Contepec, Michoacan, Mexico,** September, 1926 (R. Müller).

Structurally agreeing with *Pseudacontia,* but the entirely different wing shape may ultimately require another genus.

Agrotis miniptica Dyar, n. sp.

Fore wing warm gray; a little line of bright red along costal margin, inner margin and tip of fringe; subbasal half line slender, black, inwardly oblique; inner line blackish, single, dislocatedly angled on vein 1, very obsoletely doubled within; reniform and orbicular yellow margined, orbicular open above, reniform with a blackish cloud in lower segment; a median shade line, roundedly incurved in cell; outer line slender, denticulate on the veins, very obsoletely doubled outwardly; subterminal line shaded, dusky, tending to form cuneiform spots between the veins, with a few bright scales outwardly; a terminal dotted dark line. Hind wing translucent blackish, fringe pale. Expanse, 41 mm.

Type, female, **Contepec, Michoacan, Mexico,** October, 1926 (R. Müller).

GEOMETRIDÆ

Sicya sistenda Dyar, n. sp.

Fore wing light yellow, the costa rather broadly pale pinkish, but the color is not contrasted; a small round dark brown discal dot; outer line only present, pale purplish, faint below vein 3, the upper part shaded and with small blackish points on the veins; fringe concolorous. Hind wing whitish, yellow shaded outwardly; a single small round discal point. Expanse, 31 mm.

Type, male, **Colima, Colima, Mexico,** October, 1926 (R. Müller).

Eucymatoge obliquiplaga Dyar n. sp.

Fore wing light gray, reddish brown narrowly at base; a basal black dot; a subbasal narrow black angled line; centrally four lines cross the wing, the inner broadly shaded and oblique from before middle of inner margin to end of cell, where it is reflexed to costa; other lines roundedly excurved over cell to costa, the outer one more remote and showing dots on the veins above; costa apically black shaded; an indefinite subterminal line; a terminal black line with dots on the veins. Hind wing very pale gray, with six lines on the inner half, basal broad, second and third wavy, fourth broad, fifth and sixth wavy; a minute discal dot. Expanse, 18 mm.

Type, female, **Contepec, Michoacan, Mexico,** October, 1926 (R. Müller).

PYRALIDÆ

Desmia pantalis Dyar, n. sp.

Antennæ long; a slight bend at basal fourth, but without distinct tuft. Fore wing narrow, pointed, lustrous bronzy brown; two large white semihyaline spots, the inner crossing the wing, with a wavy black line just within its lower border below; outer spot from costa to vein 3, also with a denticulate black line outwardly, within its outer edge costally; fringe white, interlined with brown. Hind wing with the disk broadly white from costa to inner margin, narrowing sharply toward inner margin; a round black spot on origin of veins 3-5; a curved spot beyond it close to the black margin, this spot faintly continued toward costa; fringe as on fore wing. Expanse, 24 mm.

Type, male, **Colima, Colima, Mexico,** November, 1926 (R. Müller).

Nearest *ufeus* Cramer, but the outer line unusually detached and two black spots on hind wing.

Crambus rotarellus Dyar, n. sp.

Fore wing silvery white, shaded with blackish along base of costa and irrorated with this color over lower half of wing; a diffused yellowish brown line beyond middle, sharply angled at discal fold, else straight, with an intensification at discal fold; an outer double submarginal line, inner segment crenulate, outer shaded and broken; a narrow terminal black line, with little dashes at the ends of the veins. Hind wing white. Expanse, 15 mm.

Type, female, **Contepec, Michoacan, Mexico,** September, 1926 (R. Müller).

Near *pusionellus* Zeller, larger, the outer line crenulate and excurved only subcostally.

SYNTOMIDÆ

Leucotmemis pardalimacula Dyar, n. sp.

Antennæ black with a white patch on one side before tip. Head orange; thorax black, a broad orange stripe on each patagium and an anterior orange spot between. Abdomen blue-black with whitish reflection, segments bordered posteriorly with orange above and below. Wings hyaline, veins and outer border black; apex broadly black, truncating the hyaline area almost to margin at vein 3, broad again at tornus; orange markings bordering the hyaline area as follows: A line below vein 12 to end of hyaline area; a small spot in base of cell; a lunate discal spot; a spot below it in interspace 2-3; four spots at end of hyaline area between veins 3-4, 4-5, 5-6, and 6-7 respectively; two spots at end of hyaline area on either side of submedian fold; a long spot at base below submedian fold; a spot at base, and further out a long spot below vein 1. Hind wing small, black, with two hyaline areas, the basal edged with orange above and below, the outer with a little orange outwardly, cut by three black veins; costal edge orange to outer hyaline spot. Expanse, 37 mm.

Type, female, **Colima, Colima, Mexico,** October, 1926 (R. Müller).

ON THE IDENTITY OF CHŒRODES INCURVATA GN.

BY WILLIAM BARNES AND F. H. BENJAMIN
Decatur, Illinois

This insect was described by Guenée, 1852, Sp. Gén., IX, 37, and figured in Atlas, pl. III, f. 2. The Barnes collection possesses a specimen bearing labels, "Bdv.," "Ex Musæo Ach. Guenée," "Typicum Specimen." This specimen exactly agrees with the original description. The transverse lines and black shades have obviously been accentuated by the artist who made the figure as the description states "—saupoudrées d'atomes noirs qui s'accumulent en une série peu marquée de taches subterminales, avec une ligne fine, peu visible, trés-droite, marquée de points blancs sur les nervures—"

We are convinced that the specimen before us is the type. Other females from St. Petersburg, Florida, closely match it, and the name should be used for the Gulf Strip race of *Sabulodes transversata* Dru. with *transvertens* Wlk. as a color form, slightly paler but with more heavily marked t. p. lines.

The form heretofore going as *incurvata* was determined in the Guenée collection as *transversata,* which accounts for Guenée having renamed the typical *transversata, goniata.*

NEW SPECIES OF NORTH AMERICAN RHYNCHOPHORA (COLEOPTERA)

BY EDWIN C. VAN DYKE
University of California, Berkeley, California

Pissodes robustus Van Dyke, new species

Robust, reddish brown, pronotum with the usual two small patches of white scales, a few similar scales in front and more numerous ones along the sides, scutellum completely clothed with white scales, the elytra with rather large subbasal patches of light buff scales, obliquely placed from the third to seventh interval, and very large patches of white and buff scales at apex of elytral declivity, the latter broadly margined with black, the underside and legs more or less ornamented with white scales. Head coarsely, densely punctured in front, a deep fovea between eyes; beak shorter than prothorax, very broad and robust, coarsely, densely punctured at base, more finely apically. Prothorax slightly broader than long, almost as broad as elytra, very convex, hind angles obtuse and slightly rounded, sides broadly arcuate and gradually narrowed toward apex, the disk coarsely, closely punctured and with small carina at middle. Elytra twice as long as prothorax, third and fifth intervals considerably elevated, the seventh to a lesser degree, the fifth tuberculate posteriorly, the striæ very coarsely, not closely punctured. Length 6 mm. from base of beak to tip of elytra, beak 1.75 mm., breadth 2.5 mm.

Holotype (No. 2464, Mus. Calif. Acad. Sci.) and paratype in my collection, taken by Mr. A. H. Muzzall at Camp 20, Hammond Lumber Company, **Humboldt County, California,** June and July, 1916. The host tree was not identified.

This species has a color pattern very close to that of *Pissodes terminalis* Hopping,[1] but it differs greatly otherwise, for it has a more robust and shorter rostrum and the hind angles to prothorax obtuse and somewhat rounded, not sharply right angled. In Hopkins' Monograph of Pissodes,[2] it would fall in his key to the species very close to *similis* Hopk., but can be separated from the same by being larger with the rostrum and prothorax both more robust, the latter with hind angles obtuse and somewhat rounded, the elytra with alternate intervals more elevated and color pattern more conspicuous. From *Pissodes barberi* Hopk., which occurs in its territory, it differs definitely by being

1 A New Species of the Genus Pissodes (Coleoptera), by Ralph Hopping, Can. Ent. Vol. LII (June, 1920), p. 133.

2 Contribution toward a monograph of the bark weevils of the Genus Pissodes, by A. D. Hopkins, Tec. Ser. No. 20, pt. 1, U. S. D. A., November 11, 1911.

reddish brown, not black, with the anterior elytral color patch rather large, not indistinct, and the posterior very large, not small. *Pissodes costatus* Mann., which also simulates it, lacks the very robust rostrum and prothorax, the somewhat rounded hind angles to latter, the rather large anterior color patch, and in addition has the posterior spot anterior to the declivity.

Pissodes ochraceus Van Dyke, new species

Robust, reddish brown, pronotum with the usual two patches of white scales and in addition a few buff scales in front, elytra with a subbasal patch of ochre colored scales, of moderate size, and a large transverse patch of scales of the same color, surrounded by a black margin, anterior to the elytral declivity, and a few scattered white scales both above and beneath. Head moderately coarsely, densely punctured in front, a shallow fovea between the eyes; beak equal in length to prothorax, robust, coarsely, densely punctured at base, finer apically. Prothorax slightly broader than long, almost as broad as elytra, very convex, hind angles obtuse and blunt, sides broadly and evenly arcuate until near apex where suddenly constricted, disk coarsely, closely punctured and with fine carina at middle. Elytra twice as long as prothorax, third and fifth intervals distinctly elevated, the seventh to a lesser degree, the fifth tuberculate posteriorly, the striæ coarsely, not closely punctured. Length 6.5 mm. from base of beak to tip of elytra, beak 2 mm., breadth 2.5 mm.

Holotype (No. 2465, Mus. Calif. Acad. Sci.) and one paratype in my collection, taken by myself at **Meadow Valley, Plumas County, California,** June 6, 1924. The host tree could not be located.

The distinctive color pattern of this species readily separates it from all of our other species. Structurally, it somewhat resembles the preceding but has a slightly narrower and more cylindrical beak, less coarsely punctured, more suddenly narrowed prothorax in front, and the posterior elytral maculation anterior to the basal declivity. In this latter regard as well as by its general shape, it closely approaches *Pissodes costatus* Mann. and is no doubt somewhat related to it.

Anculopus Van Dyke, new genus

Moderately elongate and somewhat flattened; beak free, not flexed, moderately robust, somewhat shorter than prothorax, slightly curved, suddenly constricted at base and just behind eyes, the apical portion slightly wider than basal, antennæ inserted toward sides one-third from apex and with insertion visible from above, the scrobes deep, bent backward and beneath to inferior margin of eyes where

somewhat dilated, mandibles biemarginate and tridentate at tip; eyes not large but protuberant and slightly angulated at apex; antennæ with first segment of funicle longer than broad, the four following transverse and gradually broader, the terminal forming a compact fusiform club. Prothorax longer than broad, the prosternum slightly emarginate in front, the front coxæ narrowly separated by prosternal spine. First and second ventral segments each considerably longer than third and fourth united, the triangular suture separating them finely yet distinctly defined throughout. The femora moderately clavate, tibiæ rather long, curved near apex, with corbels and a long oblique claw at apex which is dilated and ciliated basally.

Genotype, *Anculopus foveatus* Van Dyke.

This genus undoubtedly belongs very near *Paraplinthus* and as such within the tribe Hylobiini as defined by LeConte and Horn.[3] The more restricted tribe given by Blatchley and Leng [4] would not receive it because of the distinct though narrow separation of the front coxæ though it possesses all of the other characters called for. I believe that the Pissodini should be kept distinct from the Hylobiini as has been done by the latter workers, but I also believe that the second tribe should be extended so as to admit this genus, for it without doubt belongs here. From *Paraplinthus* and other members of the tribe, it differs by the narrow separation of the front coxæ as well as by the peculiar stalk-like formation of the eyes, the latter character separating it from all weevils which might be confused with it.

Anculopus foveatus Van Dyke, new species

Somewhat elongate, slightly flattened above; black, the rostrum, antennæ and legs rufopiceous. Head with basal portion smooth and shining, rostrum coarsely, shallowly and sparsely punctured basally, more finely, distinctly and closely apically. Prothorax distinctly longer than broad, apex truncate above, base slightly arcuate, sides broadly arcuate, constricted in front, disk moderately convex, a narrow and smooth longitudinal carina at middle, elsewhere opaque and deeply pitted or foveate, the foveæ well spaced and with a minute golden scale at the bottom of each. Elytra almost twice as long as prothorax and distinctly wider, elongate elliptical, moderately convex, the striæ defined by a series of very large, deep foveæ, somewhat closely placed, the intervals narrow and sinuate in front, broader and elongate tuberculate at sides and rear, the general sur-

[3] Classification of the Coleoptera of North America, by John L. LeConte and George H. Horn, Smithsonian Misc. Coll., No. 26 (1883), pp. 468-9.

[4] Rhynchophora or Weevils of Northeastern America, by W. S. Blatchley and C. W. Leng, Indianapolis (1916), p. 139.

face opaque like prothorax and with small golden scales at the bottom of each fovea and sparsely grouped on the summits of the tubercles. Beneath dull and coarsely but more shallowly foveate than above, the last ventral segment and legs more finely and closely punctured, all punctures with golden scales as above. Femora unarmed. Length including beak, 6 mm.; breadth, 2 mm.

Holotype (No. 2466, Mus. Calif. Acad. Sci.), a unique in my collection, taken by myself at **Humptulips, Washington,** May 28, 1914.

This deeply pitted species superficially resembles the European *Epipolacus (Plinthus) caliginosus* (Fabr.) and some of the more robust Cossoninæ, but no weevil that we have in this country. It no doubt has habits somewhat similar to *Paraplinthus carinatus* (Mann.), for it was found in deep coniferous woods just as that is.

Acmægenius granicollis Van Dyke, new species

Robust, black, subopaque, sparsely clothed with rigid hair, moderately dense and suberect on elytra, and with a few scattered white scales. Head somewhat shining, coarsely, densely punctured; beak broad, deeply grooved above, with less defined lateral grooves, and scrobe deep and broad to lower margin of eyes; antennæ less compact than in *hylobinus* and with second funicular segment proportionally longer. Prothorax as long as broad, hardly narrower at apex than base, sides moderately arcuate, disk convex, densely punctured and with intervals elevated into shining granules or small irregular tubercles. Elytra oval, almost twice as wide as prothorax and about two and a half times as long, disk very convex, striæ coarsely, moderately closely punctured, intervals vaguely convex and rather densely, irregularly punctured. Beneath rather densely, moderately finely punctured and rugose. Length including beak, 10 mm.; breadth, 4.25 mm.

Holotype (No. 2469, Mus. Calif. Acad Sci.), a unique in my collection from **Carbon County, Wyoming.**

This species superficially looks like some of the smaller, more rubbed specimens of the only other species of the genus, *hylobinus,* but it definitely differs by having a prothorax that is evidently granulate above, merely punctate in the other, as long as broad, whereas broader in the other, and with the apex hardly narrower than base in contrast to a much narrower apex in the other; with the scrobe almost touching the eye, while it does not in the other; and with the underside evidently rugose. In my series of fifteen specimens of *hylobinus* from southeastern Oregon and northeastern California, there is con-

siderable variation especially as regards the distinctness of punctation of the elytral intervals, but none of them approach the other species in regard to the characters mentioned as defining it.

Trichalophus brunneus Van Dyke, new species

Large and robust, black, upper surface clothed with small cupreous brown scale-like hair, interrupted here and there along the line of the striæ, and with a conspicuous patch of silvery scale-like hairs along the sides of prothorax, a rounded patch on the disk of each elytra one-fourth distance from the base and a double patch on the sides of the elytral declivity on what would correspond to the fifth and sixth intervals, also a few small patches defining the lateral striæ, the underside with the pro-and mesosternum densely covered with brownish white scales, the abdomen with a few similar scales at sides, elsewhere finely pilose. Head with deep groove on upper surface of rostrum, lateral grooves moderately deep and triangular and the scrobe deep as usual. Prothorax slightly broader than long, evidently transversely impressed near apex, sides slightly arcuate in front of middle, disk evenly convex, moderately coarsely, densely punctured and finely granulate, a fine longitudinal carina at middle with a small fovea in front. Elytra about three times as long as prothorax and not quite twice as wide, very convex, apical declivity abrupt, apices divergent and dentate, discal striæ vague, lateral faintly impressed. Beneath with outer hind margin of fourth ventral segment dentate as in *didymus* and *constrictus*. Length including rostrum, 13 mm.; breadth, 5.5 mm.

Holotype (No. 2470, Mus. Calif. Acad. Sci.), a unique in my collection, taken by myself in the Yakima Indian Forest Reserve, altitude 3000 feet, on the east slope of **Mount Adams, Washington,** July 1, 1925.

This large and handsome species with the four silvery elytral spots standing out more conspicuously than in any of the other species against the rich coppery brown background, should make it readily recognizable. In LeConte's table [5] it would come close to *constrictus* (Lec.).

In this connection I wish to state that my series of specimens seem to prove that *didymus* (Lec.) and *constrictus* (Lec.) are but phases of the same thing as was surmised by LeConte. Both are often found in the same territory. These two also possess along with *brunneus,* a very prominent tooth on the outer posterior margin of the fourth ventral segment, a character which is not present in the other species.

[5] The Rhynchophora of America, North of Mexico, by John L. LeConte and George H. Horn, Proc. Am. Phil. Soc., XV (1876), p. 119.

TRICHALOPHUS FOVEIROSTRIS Chittenden [6]

This insect belongs, I believe, in the genus *Plinthodes* Lec. rather than in *Trichalophus*. I have had several specimens of it in my collection for many years. They were taken in the coniferous forests on the top of Mount Mitchell and the adjacent peaks of the Black Mountains of North Carolina, during June, by Mr. William Beutenmueller and myself.

This species is smaller and the females more robust than *tæniatus*. In addition it is brown in color, with a more general dispersal of scale-like hair, has a shorter rostrum with shorter and broader lateral grooves, more prominent eyes, more finely rugose pronotum, narrower and slightly convex elytral intervals which are also more finely rugulose, and the third and fourth ventral segments broader. In some ways it strongly suggests some of the species of *Trichalophus*, especially as regards its size, color and vestiture, but its generic characters are eminently those of *Plinthodes*.

Phlœophagus californicus Van Dyke, new species

Elongate, subparallel, smooth and shining, rufopiceous. Head with eyes evidently protuberant, rostrum slightly longer than one-half length of prothorax, robust, distinctly and sparsely punctured; antennæ with first segment of funicle evidently longer than broad, second to seventh closely united, transverse and gradually broader, the club elliptical. Prothorax slightly longer than broad, sides rather evenly arcuate, constricted near apex, disk rather deeply, coarsely punctured, the punctures separated by a distance equal to their own diameter, finer near anterior margin. Elytra twice as long as prothorax, barely wider, sides parallel for basal three-fourths, broadly rounded to apex, striæ deep, rather coarsely, closely punctured, intervals perceptibly convex and crenulate, with a single series of fine punctures, the two outer longer intervals more or less finely carinate, the outermost evanescent before apex, the sulci on either side, therefore, blending near apex. Beneath rather coarsely, sparsely punctured, finer and closer on three anal segments. Length including rostrum, 3.75 mm.; breadth, 1.25 mm.

Holotype (No. 2471, Mus. Calif. Acad. Sci.), and several designated paratypes from a series of twenty-eight specimens. My types were collected at **Los Angeles, California,** many years ago. Others are from Saticoy, Ventura County, and Santa Barbara, California. It breeds commonly in the decay-

[6] Proc. Ent. Soc., Washington, XXVII (1925), p. 141.

ing branches of willow, alder, walnut, and similar trees in company with *Rhyncolus angularis* Lec.

This species is larger than any of the species listed from eastern North America except *Codiosoma (Phlœophagus) spadix* (Herbst.) and is readily separated from that by being elongate subparallel and not pilose. It is also separated from *Phlœophagus apionides* Horn and *variolatus* Dury by its larger size as well as sparser pronotal punctation. From *Phlœophagus minor* Horn which it was questionably determined as many years ago, it differs by being larger, with rostrum broader at base and not dilated apically, by having the eyes more prominent, prothorax less narrowed forward, and much coarser punctation, especially of pronotum.

Phlœophagus canadensis Van Dyke, new species

Similar in general appearance to *californicus* but a bit larger, more robust; the rostrum less dilated, eyes hardly projecting beyond side margins of head, first segment of funicle as broad as long, prothorax more robust and inclined to have sides somewhat parallel at middle, elytra more attenuated posteriorly and the two outer longer elytral intervals, eighth and ninth, carinate posteriorly, the outermost reaching the apex. Length including beak, 4 mm.; breadth, 1.5 mm.

Holotype (No. 2472, Mus. Calif. Acad. Sci.), and three paratypes collected by Mr. F. S. Carr at **Medicine Hat, Alberta, Canada,** from decaying cottonwood, *Populus,* June 20, 1926. I have also seen another specimen taken at Victoria, British Columbia, by Mr. G. A. Hardy.

ON THE IDENTITY OF ACIDALIA BALISTARIA GN. (LEPID., GEOMETRIDÆ)

BY WILLIAM BARNES AND F. H. BENJAMIN
Decatur, Illinois

This species was described by Guenée, 1857, Sp. Gén., IX, 453, from 3 ♂, 1 ♀, Collections Boisduval and Lefebvre. There is a female in the Barnes collection labeled "Typicum Specimen," "Ex Musæo Ach. Guenée." This agrees well with the original description and is the species going in collections as *rufescens* Hlst. The Guenée name has priority. *Acidalia balistaria* Auct. nec Gn. becomes *Euacidalia perirrorata* Pack.

A NEW SPECIES OF DIPLOCYSTA FROM THE PHILIPPINES (HEMIP.–TINGITIDÆ)

BY CARL J. DRAKE
Ames, Iowa

Diplocysta opipara Drake, new species

Elongate, moderately broad, yellowish brown, with brown to dark fuscous markings. Head short; anterior spines very short, blunt; median and posterior spines not very long, contiguous with the surface of the head. Bucculæ long, narrow, closed in front. Rostral channel open behind, the rostrum reaching almost to the venter. Odoriferous canal long and prominent. Antennæ long, brownish; segment I much stouter and a little longer than II; III very long, two and one-half times the length of IV; IV long, clothed with moderately long hairs, black, except small basal portion.

Pronotum tricarinate; the lateral carinæ short. Paranota enormously developed, somewhat cone-shaped, strongly inflated, covering most of pronotum (median portion of collum and most of triangular portion exposed), divaricating toward their crests. Elytra very similar in general appearance and color markings to *D. nubila* Drake; costal area irregularly triseriate, the areolæ variable in size. Body beneath black. Legs brownish, the tips of tarsi fuscous. Length, 4.32 mm.; width, 1.68 mm.

The lighter, more cone-shaped and divaricating paranota distinguish *D. opipara* n. sp. from *D. nubila* Drake. *D. nimia* Drake differs in having a broader costal area and much more strongly inflated paranota. The costal area is uniseriate in *D. bilobota* Horvath.

Holotype (male) and *allotype* (female) Bagnio, **Luzon, Philippine Islands,** in Drake collection. Three paratypes, taken with type in California Academy of Science and Drake collection.

ON THE PLACEMENT OF "OGDOCONTA" CARNEOLA SM. (LEPID., PHALÆNIDÆ)

BY WILLIAM BARNES AND F. H. BENJAMIN
Decatur, Illinois

HOMOANARTA CARNEOLA Sm.

1891, Smith, Trans. Am. Ent. Soc., XVIII, 110, *Telesilla.*

Professor M. Draudt has called our attention to the fact that this species, usually placed in Ogdoconta, has strongly lashed eyes and belongs in the genus *Homoanarta* of the Cuculliinæ.

KEY TO THE SUBTRIBE HELOCHARÆ ORCHYM. (COLEOPTERA–HYDROPHILIDÆ) OF BOREAL AMERICA

BY FRED C. WINTERS
Santa Barbara, California

All tarsi five-jointed 2
Middle and hind tarsi four-jointed 4

2. Pseudo-basal joint of maxillary palpus curved, with the convexity to the front; mesosternum with a longitudinal lamina; elytra confusedly punctate ..... *Enochrus*
—. Pseudo-basal joint of maxillary palpus curved, with the convexity posteriorly; mesosternum at the most feebly protuberant 3
3. Labrum visible ..... *Helochares*
—. Labrum concealed beneath clypeus, clypeus projecting laterally in front of the eyes to a great extent ..... *Helobata*
4. Mesosternal carina transverse or elevated at middle, forming a pyramidal or dentiform protuberance; maxillary palpi not longer than in *Enochrus*; tarsal claws simple ..... *Cymbiodyta*
—. Mesosternum with a compressed conical process; maxillary palpi long and slender; claws broadly toothed at base in male ..... *Helocombus*

Genus ENOCHRUS (Thoms.) Zaitz.

Last two joints of maxillary palpi nearly equal in length ..... Subgen. *Enochrus* s. str.
Last joint of maxillary palpi always shorter than the preceding 2

2. Series of coarser punctures on head and thorax indistinct or very much reduced ..... Subgen. *Methydrus* Rey
Series of coarser punctures distinct ..... Subgen. *Lumetus* Zaitz.

Subgenus ENOCHRUS Thoms.

Prosternum not carinate, piceous; sides of head and prothorax pale ..... *cuspidatus* (Lec.)
Prosternum carinate 2

2. Piceous; head entirely, tips of last joint of maxillary palpi piceous; front angles of prothorax narrowly testaceous ..... *carinatus* (Lec.)
—. Prothorax and elytra rufo-testaceous, head piceous ..... *fucatus* (Horn)

Subgenus METHYDRUS Rey

Three species belonging to this subgenus have been described from our fauna. They are undoubtedly closely related to each other, and further studies may prove them mere variations. The mesosternal carina is feebly prominent, never laminiform.

Larger size, 3-4 mm. ..... *ochraceus* (Melsh.)
Smaller size, 2.5-3 mm. ..... *curialis* Knisch., *sublongus* (Fall)

E. ochraceus (Melsh.). Common in the New England States, rare in California. I have seen specimens from Kissena Lake, L. I.; Hackensack Meadows and Lakehurst, N. J.; Flatbush, Flushing, L. I. (Coll. Dow); Montgomery City, Md. (Coll. Shoemaker); Westport, Freetown and Stoneham, Mass. (Coll. Dodge); Riverside, Cal., June, in my collection; Richmond, Va., the specimens from this last locality being of smaller size, about 3 mm.

E. curialis Knisch was described in the Entomol. Anz., Jahr. IV, No. 5, from three examples of the stockholm Museum's collection from Carolina.

E. sublongus Fall, Bul. Brooklyn Ent. Soc., XXI (1926), p. 125, described as *Philhydrus elongatulus* Fall (new spec. of N. A. Hydrobiini) Jour. N. Y. Ent. Soc., XXXII (1924), p. 85, from specimens taken at St. Petersburg and Tarpon Springs, Fla., in which special reference was made to the extremely minute emargination of the last ventral segment.

Subgenus Lumetus Zaitz.

Professor Fall called attention to the fact that a number of species in this group have a small emargination at the apex of the last ventral segment, a character I shall make use of in the following table:

Last ventral segment emarginate at apex 2
Last ventral segment not emarginate 7

2. Prosternum carinate 3
—. Prosternum not carinate 4

3. Prothorax with a large discal piceous space ..... *nigrellus* (Sharp)
—. Prothorax entirely testaceous ..... *nebulosus* (Say) and var. *pectoralis* (Lec.)

4. Anterior claws of male not distinctly toothed although with a basal angulation 5
—. Anterior claws of male distinctly toothed 6

5. Basal marginal line of prothorax distinct, maxillary palpi more or less piceo-testaceous, western ..... *californicus* (Horn)
—. Basal marginal line indistinct, maxillary palpi testaceous, large species, eastern ..... *cinctus* (Say)

6. Large species, length 7-8 mm., maxillary palpi piceous ..... *consors* (Lec.)
—. Smaller, 3.5-4 mm. ..... *blatchleyi* Fall

7. At least one claw on each tarsus of male toothed 8
—. Anterior claws of male not toothed, species piceous ..... *perplexus* (Lec.)
8. Species piceous ..... *conjunctus* (Fall)
—. Entire upper surface testaceous ..... *reflexipennis* (Zimm.)
—. Prothorax with a large discal piceous space, broader species ..... *hamiltoni* (Horn)
—. Prothorax testaceous, head more or less piceous, narrower species ..... *diffusus* (Lec.)

E. nigrellus (Sharp), Biol. Centr. Amer. Coleop., I (2), 1882, p. 68 (*Philhydrus*).

This is an addition to our list. Elliptical, convex, shining, brown to piceo-testaceous, head piceous with a paler space in front of each eye. Prothorax with a large piceous median space, sometimes shading gradually into the paler color of the sides, distinctly and moderately closely punctate, the arcuate and transverse series of coarser punctures and basal marginal line distinct. Elytra punctured similarly to the thorax, with the punctures less impressed toward the apex, the usual series of coarser punctures distinct. Body beneath piceous, opaque, prosternum strongly carinate, the carina more elevated in front, mesosternal lamina very prominent with an acute angle, femora piceous, tibiæ and tarsi rufo-testaceous, tarsal claws as in *ochraceus*, last ventral segment emarginate at middle. Length, 3.5-4 mm.

This species closely resembles *ochraceus* in shape and color, but is easily recognized by its carinate prosternum and strongly laminate mesosternal protuberance. From *nebulosus* it is separated by its color and the piceous space at middle of pronotum. My description is based on a series of twelve specimens from Riverside and Santa Barbara, California.

E. nebulosus (Say) occurs from Canada to Florida and westward to Indiana and California. I have seen specimens from Claremont, N. H. (Coll. Dow); Pinehaven and Rockaway Beach, L. I. (Coll. Shoemaker); Ithaca, N. Y. (Coll. Richmond); Nashville, Tenn. (Coll. Dodge); Paradise Key, Fla. (Schwarz and Barber); Tompkins Cove, N. Y.; Jekyl Island, Ga.; Porto Rico (Amer. Mus. Nat. Hist., N. Y.); and Richmond, Va.

The variety *pectoralis* (Lec.) is confined to southern California and is distinguished by the minute punctuation of the upper surface, and averages smaller in size and is less convex in form than typical *nebulosus*. It occurs in brooks, my specimens being from Ventura and Riverside, California.

E. californicus (Horn). This species resembles in form and color, *Cymbiodyta dorsalis* (Mots.), but is easily separated from that species by its generic characters. Specimens when not fully mature are brownish testaceous, but change to piceo-testaceous upon reaching maturity. The second maxillary palpus at basal half, and terminal joint at tip are darker, the coarser arcuate series of punctures on prothorax and basal marginal line are distinct, the coarser punctures of elytra indistinct, and the last ventral segment emarginate. This species seems to prefer standing water. My specimens are from Santa Barbara and Riverside, California.

E. cinctus (Say). This large piceous species could only be compared with *E. consors* (Lec.), but its testaceous maxillary palpi, indistinct basal marginal line and untoothed male claws will easily separate it. It prefers standing water and occurs, according to Doctor Horn, from Canada and the New England States south to Georgia and west to Kansas. Blatchley records it as throughout Indiana, and Leng and Mutchler, from Lake Worth and Lake Okeechobee, Fla. I have seen specimens from New Haven, Conn.; Lakehurst and Hackensack Meadows, N. J.; Flatbush, Rockaway Beach and Kissenor Lake, L. I.; Stoneham, Mass.; Chicago, Ill.; and the Catskill Mountains, N. Y.

E. consors (Lec.). The piceous maxillary palpi will separate this from the other members of its genus. I have seen specimens from Brookville and Lakehurst, N. J.; Pablo Beach, Fla. (Coll. Dodge); Writesville, N. C. (Coll. Davis); and Paradise Key, Fla. (Barber and Schwarz).

E. blatchleyi (Fall) is piceous black, formed nearly as in *nebulosus,* thorax somewhat paler, ventral apex with a minute emargination, protarsal claws of male each with a moderately strong, nearly rectangular basal tooth, and the prosternum not carinate. I have seen no specimens. Professor Fall records it from Dunedin, Tarpon Springs, and St. Petersburg, Fla.

E. perplexus (Lec.). This may easily be recognized by its piceous color, elongate form and non-emarginate last ventral segment. It is common from Canada to Florida. My specimens are from Hackensack Meadows, N. J.; Kissenor Lake, L. I.; Ottawa, Ont. (Coll. Beaulne); Writesville, N. C. (Coll. Davis), and Stone Mountain, Ga. (Cornell University).

E. conjunctus (Fall). According to Professor Fall, this species much resembles *E. carinatus* (Lec.) in color but is much smaller and less convex and, by the palpal characters, belongs to a different section of the genus. The claws are toothed somewhat after the manner of *E. hamiltoni* (Horn). It was described as from Lake Tahoe, California.

E. reflexipennis (Zimm.). This species may easily be recognized by its pale head and testaceous surface. It is a saltwater species found on the coast of Connecticut and Long Island. I have seen specimens from Norwalk and the saltwater marshes near New Haven, Conn., North Beach and the marshes of Rockaway Beach, L. I. (Coll. Shoemaker), and Staten Island.

E. hamiltoni (Horn). This species is as a rule more broadly oval than the following and the thorax has a large piceous space at middle. It is common in salt as well as fresh-water marshes and is recorded from Canada to Florida and westward to California. I have seen specimens from Rockaway Beach, L. I.; Staten Island; Yonkers, N. Y.; Chesapeake Beach, Md.; Tiverton, R. I.; Stoneham, Mass.; Orono, Me.; Chicago, Ill.; Wathena, Kan. (Coll. Dodge); Cornwall, Conn. (Coll. Chamberlin); and Paradise Key, Fla. (Schwarz and Barber). Professor Blatchley records it as frequent in Lake, Starke, and Luparte counties, Indiana.

E. diffusus (Lec.). This species while closely resembling *hamiltoni* is much more oblong in shape and has no thoracic piceous space, and the anterior claws of the male are more everted. Doctor Horn records it from Illinois, Dakota, Wyoming, Nebraska, and California. My specimens are from Santa Barbara, California, caught in marsh land along the seashore. It seems to be rare in collections and I have seen none from the Atlantic coastal regions.

Genus HELOCHARES Muls.

This genus differs from *Enochrus* by its maxillary palpi which are shaped like those of *Cymbiodyta*, from *Cymbiodyta* by its five-jointed middle and hind tarsi and slightly emarginate last ventral segment, and from both by having the clypeus more broadly rounded in front and the apex deeply emarginate, exposing the labrum to a larger extent. This is the only genus in the Hydrophilidæ, so far as known, where the female attaches its egg cases to the abdomen until the larvæ are hatched.

Two subgenera occur in our fauna, which may be separated as follows:

Elytra non-striate, sutural striæ absent, maxillary palpi very slender ..... Subgen. *Helochares* s. str. Muls. (Kuw.)

Elytra with ten well-marked striæ, last joint of maxillary palpi at the most as long, and as a rule shorter than, the penultimate ..... Subgen. *Hydrobaticus* W. McLeay

Subgenus HELOCHARES, s. str. Muls. (Kuw.)

H. sellæ Sharp. Broadly oblong, feebly convex; black above, shining, sides of clypeus in front of eyes, labrum, the side margins of prothorax and elytra reddish piceous; under surface dark piceous, antennæ, palpi and tarsi paler. Head distinctly punctate; clypeus emarginate with an irregular transverse series of larger punctures on either side near the front, clypeal suture marked by larger punctures; maxillary palpi very slender, piceo-testaceous, pseudobasal segment curved with the convexity posteriorly. Prothorax distinctly punctate, transverse series of coarser punctures very prominent, basal marginal line absent. Elytra distinctly punctate, punctures toward apex less deep with a distinct series of coarser punctures along the middle, and two others less distinct external to these; sutural striæ absent. Length, 5.5 mm.

This species was collected by Professor Blatchley at Dunedin, Florida, and described as *Philhydrus estriatus* Blatch. He had the kindness to send me a cotype, which I found to be *H. sellæ* Sharp, originally described by Doctor Sharp from Cordova, Mexico.

Subgenus HYDROBATICUS W. McLeay

The two species known from our fauna are separated as follows:

Mentum slightly emarginate at apex, arcuate series of coarser punctures on prothorax absent, eastern ..... *maculicollis* Muls.

Mentum deeply emarginate, arcuate series of prothoracic punctures distinct ..... *normatus* (Lec.)

H. maculicollis Muls. My specimens are from Richmond, Va. Doctor Horn records it from Ohio to North Carolina, Florida, and Texas; Professor Blatchley from Dunedin, Fla.; Leng and Mutchler from Eson River, Fla.; and Uhler from Washington, D. C.

H. normatus (Lec.) has, as Doctor Horn rightly observed, the mentum emarginate and the mesosternum feebly carinate

and similar to *Enochrus ochraceus* (Melsh.). The subgenus *Chasmogenus* Sharp is founded on a species that is non-striate, except for the sutural striæ, with very long maxillary palpi, as long as head and pronotum together, with mentum deeply emarginate, and mesosternum carinate. The ten-striate elytra and comparatively short maxillary palpi place this species in *Hydrobaticus,* a view which has been taken by both Orchymont and Knisch. It occurs in the slowly flowing waters of southern California and seems not to object to warm springs. My specimens are from Ventura, Santa Barbara, Riverside, and Arrowhead Hot Springs, California. Doctor Horn records it from San Francisco southward into the Peninsula of California and eastward to Arizona.

Genus HELOBATA Bergr.

This genus is peculiar in having the labrum concealed under the clypeus; mentum transversely quadrate, its triangularly, apparently elevated, area at center slightly concave and with a small circular emargination in front, obliquely impressed on each side where it joins the submentum; maxillary palpi very long and in the specimens before me with a tendency to fold between the elevated triangular center and submentum; clypeus projecting laterally in front of the eyes to a great extent; prothorax and elytra broadly margined, the latter extending beyond the tip of the abdomen. According to Doctor Sharp, the anterior coxal cavities are closed behind by the junction of the epimera with the prosternal process, a character which isolates this genus from all other Hydrobiini although in other respects it is approached by various species of *Helochares.*

H. striata Brullé. This species has been known to us heretofore as *Helopeltis larvalis* Horn. I have two specimens before me from Florida which present the following characters: slightly piceous or somewhat testaceous in color; head and prothorax obsoletely rugulose, smoother at sides; apex of prothorax emarginate, arcuate series of coarser punctures absent; scutellum elongate triangular, scutellar striæ distinct; elytra obsoletely rugulose, explanate at sides, with ten punctate striæ, the last two close together, leaving a narrow interval between; the side margins wide, explanate; prosternum and mesosternum simple; last ventral segment emarginate at apex, the femora pubescent and tibiæ finely spinulose.

Doctor Horn records it from Louisiana and Sonora; Doctor Sharp from Guatemala, Paso Antonia, 4000 feet, and Cuba; Leng and Mutchler, Florida (Roberts' Coll.); Blatchley, Sarasata, Florida, March 4, beneath chunks of débris half buried in the mud of tide-water marsh; and Knisch, southern part of North America, West Indies, Central and South America.

Genus Cymbiodyta Bedel

Elytra with distinct striæ 2
Elytra without striæ (except the sutural) 6
2. All striæ entire, scutellar row of punctures distinct ..... *punctatostriata* (Horn)
—. Inner striæ much abbreviated 3
3. Mesosternal ridge broadly conical, when viewed posteriorly ..... *fraterculus* Sharp
—. Mesosternal ridge straight or arcuate 4
4. Apex of clypeus straight, second segment of maxillary palpi and tips of terminal segment darker, arcuate row of coarser punctures of prothorax well marked, elytra ochraceous, striæ feebly impressed with punctures less coarse than in the following ..... *imbellis* (Lec.)
—. Apex of clypeus arcuate-emarginate, maxillary palpi testaceous, arcuate series of prothorax reduced to a few coarser punctures, elytra piceous, border indefinitely paler 5
5. Larger, 5-6 mm., coarser punctures of alternate intervals distinct ..... *morata* Horn
—. Smaller, 4-5 mm., coarser punctures of alternate intervals indistinct ..... *dorsalis* (Mots.)
6. Mesosternal ridge angularly elevated at middle or dentiform 7
—. Mesosternal ridge straight 8
7. Broadly oval, mesosternal ridge pyramidal, large species, 6-7 mm. ..... *rotunda* (Say)
—. Oblong oval, mesosternal ridge dentiform, smaller species ..... *minima* Not., *acuminata* Fall
8. Clypeus with a brown spot in front of each eye, pale margin of prothorax and elytra pronounced ..... *blanchardi* Horn
—. Clypeus piceous 9
9. Coarser series of punctures of elytra absent ..... *lacustris* (Lec.)
—. Coarser series of punctures of elytra distinct 10
10. Elytra widest at basal third, then conspicuously narrowed toward apex, giving the species when viewed from above an egg-shaped outline ..... *fimbriata* (Melsh.)
—. Form depressed, oblong, elytra widest at middle ..... *vindicata* Fall

C. punctatostriata (Horn). This species has the clypeus strongly arcuate-emarginate at apex, sides of clypeus slightly explanate and paler in front of each eye, striæ entire, in these

characteristics resembling *Hydrobaticus,* but the number of tarsal segments on the middle and hind tarsi will easily separate it from that subgenus. It is not rare in the mountain streams of the Coast Range of southern California. My specimens are from Camp Meeker, northern California, and Santa Barbara.

C. fraterculus Sharp. I have no specimens of this before me. Doctor Horn records it from southern Arizona well into Mexico.

C. imbellis (Lec.). This species is as a rule recognized by its brownish elytra, though in some cases its color approaches that of *dorsalis.* Its clypeus is narrowed toward apex in a slight curve with its front straight; its maxillary palpi are longer than in *punctatostriata* or *dorsalis,* with the second segment at base and terminal at apex darker. The arcuate series of coarser punctures of prothorax are very pronounced and the elytral striæ consist of much finer and only slightly impressed punctures as compared with *dorsalis.* Doctor Horn gives the number of entire striæ as five, but they are by no means constant. In my specimens from Camp Meeker five striæ are plainly discernible while in those from Santa Barbara they are reduced to two.

C. morata Horn and *dorsalis* resemble each other very closely. In both the clypeus is almost semicircular and slightly arcuate-emarginate in front, the prothoracic punctures of systematic value are very much reduced, and the maxillary palpi are shorter comparatively than in *imbellis.* I have found that the only way of separating *morata* from *dorsalis* is by its average larger size and the greater prominence of the coarse interstitial punctures. I have studied thirty specimens from Jemez Springs, Ariz. (Coll. Sherman), and three specimens from Yuma County, Ariz., June (Coll. Dow).

C. dorsalis (Mots.) seems to prefer mountain streams at lower altitudes and is common in southern California. My specimens are from Camp Meeker, Santa Barbara, Santa Cruz Island, Ojai, and Riverside.

C. rotunda (Say). This species is the most broadly oval of any in this genus. Of its maxillary palpi I can unfortunately say nothing, as they are both missing in the two specimens before me. The mesosternum has the transverse ridge broadly pyramidally elevated, and one of my specimens, a male, has the

last ventral segment slightly emarginate at the middle of the apex, which is unique in this genus. It seems, while widely distributed, to be extremely rare in collections. My specimens are from Westwood, N. J., and Pennsylvania (collection by Henry Ulke in 1890). Doctor Horn records it from the Middle States as far south as North Carolina.

C. minima Not., Bul. Brooklyn Ent. Soc., XIV, 1919, p. 133. It was described from three specimens collected at Mooers, Clinton Co., N. Y., September, 1918. I have seen no specimens, but according to the description it is recognized by its small narrow form, 2.75-3.5 mm.; transverse row of coarser punctures of prothorax and rows of coarser punctures of elytra indistinct; nonstriate except for sutural striæ, with the mesosternal ridge strongly and acutely elevated at middle.

C. acuminata Fall, Journ. N. Y. Ent. Soc., XXXII, June, 1924. According to Professor Fall this species resembles in its general aspect smaller specimens of *C. vindicata* Fall or *Enochrus perplexus* (Lec.), with the pale margin of the prothorax extending narrowly across apex and vaguely inward for a short distance along base. The mesosternal transverse ridge is elevated into a long subconical acute spur.

C. blanchardi Horn. This species is easily recognized by its small broad form and pale space in front of each eye. It seems to prefer swift-running water. My specimens are from Ardsley on Hudson, N. Y., Halden, N. J., and Richmond, Va. Others seen were from Woodland, N. J. (Coll. Dow), Fairfax County, Va. (Coll. Shoemaker), Yonkers, N. Y. (Coll. Angel), and Cornwall, Conn. (Chamberlin).

C. fimbriata (Melsh.). We have to thank Professor Fall for the proper identification of this species which has long been confused with *vindicata* Fall or Zimmerman's *semistriatus*. *Fimbriata* is more convex, with elytra distinctly narrowed posteriorly almost from the basal fourth, and is much rarer than *vindicata*. My specimens are from Van Cortland Park, N. Y., and Westwood, N. J. Professor Fall records it from New Hampshire and Massachusetts.

C. vindicata Fall. This species is common from Canada to Texas. I have seen specimens from Kissenor Lake, L. I., Staten Island and Tompkins Cove, N. Y.; Secaucus, N. J.; Woodstock, Vt.; Monticello (U. S. N. M.); Tatowa, N. J.;

Claremont, N. H. (Coll. Dow); Ithaca (Coll. Richmond); Orono, Me. (Coll. Dodge); Cornwall, Conn. (Coll. Chamberlin); and Richmond, Va. This species has heretofore been known as *C. fimbriata* (Melsh.).

C. lacustris (Lec.). This species is of an oblong form, with coarser punctures of elytra absent and the transverse ridge of mesosternum short. It is not rare, occurring from Lake Superior to New England. My specimens are from Kissenor Lake, L. I., Hackensack Meadows, N. J., Cornwall, Conn. (Coll. Chamberlin), New Haven, Conn., Flatbush, L. I. (Coll. Shoemaker), and Framingham, Mass. (Coll. Dodge).

Genus HELOCOMBUS Horn

Tarsi heteromerous, maxillary palpi very long, curved as in *Cymbiodyta,* prothorax without basal marginal line, elytra deeply striate, resembling in form and structure *Hydrobius fuscipes* L., but easily separated from it, aside from its more important structural characters, by its long maxillary palpi.

H. bifidus (Lec.). Doctor Horn records it from Canada and the Lake Superior region and the New England States southward to Georgia. I have seen specimens from Forest Park, L. I., in a pool among leaf mold, Weehawken, N. J. (Amer. Mus. Nat. Hist., N. Y.), Fall River, Mass. (Coll. Dodge), Ottawa (Coll. Beaulne), and Staten Island, N. Y. (Coll. Davis). Professor Blatchley records it as frequent in the lakes of the northern half of Indiana.

NOTE ON WESTERN BULB FLIES

In the past the syrphid fly *Eumerus strigatus* Fall. has been designated as the lesser bulb fly or onion fly, but it now appears that there are at least three species of Eumerus in the western states, two of which are quite common. The bulb flies are of considerable economic importance, and a careful study of several thousand specimens reared from infected bulbs in Washington, Oregon, and California should yield some interesting results. The commonest species in California is *Eumerus tuberculatus* Rond. Experimental work with these flies is being carried on at the United States Bureau of Entomology Field Station at Santa Cruz.—F. R. Cole.

FOUR NEW CALIFORNIA THYSANOPTERA WITH NOTES ON TWO OTHER SPECIES

BY DUDLEY MOULTON

Family THRIPIDÆ Uzel
Subfamily THRIPINÆ Karny
Toxonothrips Moulton, new genus
(Toxon = bow)

Head broadly rounded in front, without prominent spines. Ocelli fully developed in female, absent in male. Antenna seven-segmented. Maxillary palpus three-segmented. Prothorax with two long spines on each posterior angle, without spines on anterior angles. Wings fully developed in female, bowed backward in the middle, scythe-shaped, with two longitudinal veins. Wings wanting in male.

I am designating *T. gramineæ* Moulton as the type of the genus.

Toxonothrips gramineæ Moulton, new species

Female, holotype. Color dark brown, abdominal segments two to five lighter, shading gradually to dark brown at tip. Antennal segments one and two dark brown, concolorous with head, three and four light yellowish brown, three a little lighter than four, five lighter at base, outer half of five, also six and seven dark brown. All femora dark brown, middle and hind femora lighter at extreme base. Fore tibiæ yellowish, shaded brown on upper and lower margins, middle and hind tibiæ brown shading lighter at outer ends. All tarsi light yellowish brown. Wings brown with basal one-fifth whitish. Crescents of ocelli deep orange-red.

Measurements: Total body length 1.50 mm. Head, length .175 mm., width .18 mm.; prothorax, length .13 mm., width .225 mm.; mesothorax, width .30 mm.; greatest width of abdomen .33 mm. Length (width) of antennal segments, I, 24 (27) microns; II, 33 (27); III, 48 (21); IV, 51 (18); V, 45 (18); VI, 60 (18); VII, 24; total length 270 microns.

Front of head including compound eyes broadly rounded, almost semicircular. Cheeks arched. All head spines short and inconspicuous. Eyes relatively small, together occupying about .4 the width of the head. Ocelli small but well developed. Mouth cone triangular with blunted tip, reaching about three-fourths across prosternum. Maxillary palpus three-segmented. Antenna seven-segmented, about one and one-half times as long as head. Forked trichomes on segments three and four, simple on segments five and six.

Prothorax with two prominent spines on each posterior angle (45-54 m. long), all other spines inconspicuous; three pair along posterior margin small. All legs slender, tibiæ and tarsi unarmed. Wings fully developed, reaching almost to tip of abdomen, with

anterior margin bowed backward in the middle and posterior margin parallel with anterior margin in median three-fifths of wing; costa with twenty-two spines, fore vein with six (3-2-1) in basal half and three in distal portion, hind vein with ten.

Abdomen broadly ovate with three terminal segments subtriangular. Segment eight with a fully developed but rather sparse comb. Two long strong bristles on each posterior angle of segment nine (inner 120 m., outer 150 m.), a median pair in front of posterior margin (111 m.), a short dorsal median lateral pair (48 m.). Segment ten with dorsal suture over entire length, longest spines weaker than those on segment nine, about 90 m.

Male, allotype. Color about as in female. Total body length .88 mm. Head, length .133 mm., width .133 mm.; prothorax, length .108 mm., width .15 mm.; pterothorax width .166 mm.; greatest width of abdomen .25 mm. Length of antennal segments, I, 24 microns; II, 33; III, 42; IV, 36; V, 33; VI, 48; VII, 18; total length 240 microns. Outer spines on posterior angles of prothorax 24 m.

Apex of head flattened, otherwise shaped as in the female. Spines inconspicuous. Ocelli entirely wanting. Wings wanting. Impressions on ventral side of segments three and four small, oval, not visible on other sternites. Posterior margin of the eighth tergite curved inward and forward from each side to near middle where both sides suddenly turn back to form a prominent median lobe, which reaches almost to posterior margin of ninth segment. Ninth segment with a pair of spines along posterior margin near outer angles (69 m. long), and a second pair of about equal length in the middle of the side margin. Segment ten with a single pair of curved spines 60 m. long.

Described from two females and one male taken from grass sweepings at **Lake Tahoe, California,** in July, 1926, by the writer (Reg. No. 956). All types in author's collection.

This species has the general appearance of a *Limothrips* Hal., but with head broadly rounded in front, without thorns on the ninth tergite and with seven-segmented antenna. If the maxillary palpi were two instead of three segmented, it would more nearly resemble *Baliothrips* Uzel. It differs from *Thrips* Linn., in the broadly rounded apex of the head, the absence of prominent head spines, and differently shaped wings in the female.

Heliothrips bromi Moulton, new species

Female, holotype. With the characters of the genus. Color dark brown with yellowish connecting tissue between segments. Antennal segments one, two, six, seven, and eight dark brown; three and four light yellowish at either end, brown in the middle; five yellowish in basal half, dark brown in outer half. Legs yellow with all femora

and tibiæ shaded light brown to brown in the middle. Wings transparent with only a slight shading of brown at extreme tip of fore pair.

Measurements: Total body length 1.23 mm. Head, length .133 mm., width .15 mm.; prothorax, length .12 mm., width .175 mm.; mesothorax, width .225 mm.; greatest width of abdomen .28 mm. Length (width) of antennal segments, I, 15 (24) microns; II, 36 (30); III, 45 (24); IV, 45 (24); V, 36 (21); VI, 27 (18); VII, 15; VIII, 30; total length 246 microns.

Male, allotype. Color as in female. Total body length 1.05 mm. Head, length .102 mm., width .133 mm.; prothorax, length .10 mm., width .18 mm.; pterothorax, width .20 mm. Impressions on sternites three to seven transversely elongate and narrow, and slightly bowed backward in the middle. Two pairs of short stout spines on the dorsal side of segment nine.

Described from twenty-seven female and four male specimens taken by the writer in the Mariposa Big Tree Forest, **Mariposa County, California,** in August, 1926. Host: *Bromus carinatus,* growing under giant redwoods. All types in author's collection (Reg. No. 968).

This species may be distinguished from *hæmorrhoidalis* Bouche by its more slender body, transparent wings except at the extreme tip, and the brown shading in the middle of all femora and tibiæ, and from *fasciatus* Linn. by the absence of cross bands on the wings, and by the predominating color of the legs being light yellow shaded with light brown as compared with the dark brown in *fasciatus.*

Heliothrips gossypii Moulton, new species

Female, holotype. Color yellowish brown with darker brown shadings giving a mottled effect. Legs yellowish to brownish white with all femora and tibiæ shaded brown in the middle. Antennal segments one and two brown, three and four yellowish brown in the middle and yellowish white at the ends, five yellowish white at the base shading gradually to dark brown, six, seven, and eight dark brown. Wings grayish to yellowish white with three narrow brownish crossbands in addition to a shading of light brown at extreme base. The first brown band at fork of veins is most conspicuous with more or less brownish gray shading between this and the second band at two-thirds the wing's length. The third band is represented by the darkened tip; hind wings transparent with a darkened median vein. Crescents of ocelli bright reddish orange.

Measurements: Total body length .83 mm. (in normal condition). Head, length .105 mm., width .150 mm.; prothorax, length .084 mm.,

width .17 mm.; pterothorax, width .24 mm.; wing, length .75 mm., width at middle .045 mm. Length of antennal segments, I, 15 microns; II, 36; III, 48; IV, 42; V, 42; VI, 27; VII, 15; VIII, 30; total length 255 microns.

Head 1.5 times as wide as long and .2 longer than prothorax; dorsal surface distinctly reticulate only along posterior margin, without conspicuous spines. Eyes prominent, not protruding, occupying slightly more than half the length of the head, with large facets, pilose. Ocello approximate. Antennæ twice as long as head, typical of the genus in shape.

Prothorax with indistinct reticulations, without prominent spines except a pair of rather short transparent ones on each posterior angle. Wings fully developed, seventeen times as long as width at middle, fore vein fused with costa beyond fork; costa with nineteen to twenty prominent spines and without fringe; principle vein with two spines near base and two near fork. The first three are transparent and inconspicuous, the fourth is at the fork and dark brown. One spine at fusion of anterior vein with costa and two on inner side of costa near tip, the distal one being within the darkened band and dark brown. Posterior vein with four spines, the first and third are within the white areas, and are transparent, the second is within the median brown band and is dark brown, the fourth is within the outer white area but dark brown (female paratype with six spines on posterior vein).

Abdomen broadly ovate, pointed at tip, segments one to eight striate laterally and with a comb arrangement of spines along posterior margins at sides. Four long spines on posterior margin of segment nine, the inner pair 54 m. long, the outer ones 78 m. Segment ten without dorsal suture, terminal spines short and weak.

Male, allotype. Color as in the female, except that the darkened wing bands are less pronounced and there is more brownish shading in the lighter areas. Light impressions on ventral side of segments three to seven long and narrow, extending almost entirely across sternal plates. Segment nine with one pair of short stout dorsal spines near median line and two pair of longer spines near posterior margin, the inner pair of which are longer than the outer.

Described from seven female and three male specimens taken at **Phoenix, Arizona,** in August, 1926, by Mr. J. H. O'Dell, from cotton plants, and at Calexico, California, in September, 1926, by Mr. E. A. McGregor, from citrus foliage. All types in author's collection (Reg. Nos. 1155, 1413).

This species may be distinguished from *H. phaseoli* Hood, as follows: in *gossypii* the antennæ are about twice as long as the head, and head is .2 longer than prothorax; wings have three darkened cross bands and are about seventeen times as

long as width at middle; in *phaseoli* the antennæ are 2.4 times as long as the head, head and prothorax of equal length, and wings thirteen times as long as width in middle. *H. gossypii* may be distinguished from *indicus* Bagn., the cotton thrips of India, by its lighter body color, smaller size, more slender wings, and different sculpturing.

ODONTOTHRIPS CALIFORNICUS Moulton, 1907

This species was originally described as a variety of Haliday's *Odontothrips (Thrips) ulicis*. Dr. H. Priesner's recent studies (Ref. Die Thysanopteren Europas, 1926, Part I, p. 222), show that the *"ulicis"* Haliday's group have two strong teeth at the end of the fore tibiæ, while the *"lati"* Hal. group has only one tooth and the second is represented by a bristle-bearing wart. *O. californica* Moult. belongs to the second classification and the name *"ulicis"* is misleading and therefore withdrawn. This species is closely related to *O. lati* Hal.

Rhopalandrothrips corni Moulton, new species

Female, holotype. Color pale yellowish white, pterothorax slightly orange-yellow. Antennæ: segments one, two, basal half of three, and basal third of four, yellowish white, distal half of three light grayish brown, outer half of four and five to eight dark grayish brown. Wings transparent, veins yellowish white, prominent spines brown. Crescents of ocelli bright orange.

Measurements: Total body length .83 mm. Head, length .066 mm., width .11 mm.; prothorax, length .083 mm., width .13 mm.; pterothorax width .166 mm. Length of antennal segments, I, 15 microns; II, 30; III, 45; IV, 37; V, 30; VI, 45; VII, 9; VIII, 12; total length 225 microns.

Head transverse. Eyes prominent, protruding, facets large, pilose. Ocelli well developed. Interocellar spines prominent 39 m. long and placed near inner anterior margin of posterior ocelli. Mouth cone long, pointed, reaching beyond posterior margin of prosternum. Antennæ almost three times as long as head, five smallest and six largest of intermediate segments.

Prothorax with two long spines on each posterior angle (39 m.) and a third pair (30 m.) along posterior margin. Wings well developed reaching tip of the abdomen, veins clearly defined, with three cross veins between costa and fore vein, one opposite forking of longitudinal veins, one near middle of wing, and the other at the tip where fore vein fuses with the costa broadly in two or three places. Posterior vein ending abruptly just before the tip. Costa bearing seventeen to nineteen spines, fore longitudinal vein with five at base and two at extreme tip, posterior longitudinal vein with

nine to ten evenly placed. Ninth abdominal segment with a row of six long spines (60 m.) along posterior margin. Tenth segment with a pair of long median spines near the tip (69 m.) and a shorter pair on the sides (45 m.).

Allotype, male. Color as in the female. Total body length .56 mm. Length of antennal segments, I, 15 microns; II, 33; III, 33; IV, 30; V, 21; VI, 84; VII, 9; VIII, 12; total length 237 microns.

Head conspicuously transverse with eyes large, rounded and occupying almost the entire side of the head. Ocelli fully developed. Sixth antennal segment four times as long as segment five and nearly three times as long as segments three and four. Prothoracic spines as in the female but shorter. Wings fully developed surpassing tip of the abdomen, veins and spines as in the female. Ninth abdominal segment with a row of six long spines along posterior margin.

Described from twenty female and eight male specimens taken at Big Trees, **Calaveras County, California,** in August, 1926, by the writer from the foliage of dogwood and maple and from *Bromus* sp. All types in author's collection (Reg. Nos. 967, 968, 970).

The female of this species is very similar to *Tæniothrips costalis* Jones, but smaller, .83 mm., as compared with 1.33 mm. in *costalis,* and by the long-pointed mouth cone. Jones describes the mouth parts of *costalis* as "short and blunt." The enlarged sixth antennal segment places this species clearly in Priesner's *Rhopalandrothrips,* and this is the first member of this genus to be recorded from California.

LIOTHRIPS VARICORNIS Hood, 1912

A collection of five specimens of thrips taken at Marysville, California, in December, 1926, by Mr. H. A. Crane, from hollyhocks, can be assigned to the species *varicornis* Hood, with the following notations: Antennal segments three, four, five, and six distinctly shorter than as given in the original description, and with a median longitudinal streak in the hind wings as in the fore pair, fading just before the tip. Otherwise, the specimens in this collection are apparently identical with *varicornis;* blackish brown in color with only the third antennal segment abruptly yellow and the longitudinal bars of the fore wings extending to near the tip. This thrips has been known heretofore only from Monterey, Mexico, taken from weeds and grass.

CALIFORNIA'S INTEREST IN THE INSECTS OF AUSTRALIA AND NEW ZEALAND

BY HARRY S. SMITH
Riverside, California

The appearance of Dr. Tillyard's new book[1] emphasizes the great desirability, or even necessity of a knowledge on the part of the economic entomologist of the insect fauna of those regions with which his country carries on extensive trade.

To entomologists and plant quarantine officials of the Pacific slope, in particular, the insects of Australia and New Zealand have a very special interest. Commerce with these countries by direct steamship lines, with its multitudinous opportunities for transportation of insect pests in either direction, makes it imperative for very practical reasons that entomologists acquaint themselves with the insect fauna of this part of the world. To California entomologists this knowledge is of special importance, for Australia and New Zealand are the native homes of our Eucalyptus, Acacias, and numerous other useful and ornamental plants which form such an important part of our flora. One interested in ornamental plants in this state cannot fail to be impressed with the fact that for some reason or other plants from this part of the world seem to be especially adapted to cultivation in California. Certainly the Eucalyptus and Acacias could not grow with greater vigor in their native home than they do here. It is believed one is justified in concluding that the same might be true of insects. The single important insect pest introduced from Australia, *Icerya purchasi,* lends support to this view. The woolly apple aphis, transported in the opposite direction, has been so severe in Australia that growers there have been forced to grow their apples entirely on the aphis-resistant root-stock, Northern Spy. Just as we in California have succeeded in controlling some of our worst scale-insect pests by the introduction of entomophagous insects from Australia, so it now appears that in Australia and New Zealand they have succeeded in controlling the woolly apple aphis by the introduction of the American parasite *Aphelinus*

[1] The Insects of Australia and New Zealand. R. J. Tillyard. (Sydney, Angus & Robertson, 1926, 560 pages, 8 plates in color.)

mali. Our greatest entomological romance is woven about two Australian insects, *Icerya* and *Vedalia*. For these and many other reasons there is a mutual interest on the part of entomologists of the Pacific Coast of North America and Australia and New Zealand in the insect fauna of these countries.

The appearance of a new book on the insects of Australia and New Zealand is therefore a matter of more than usual importance, particularly where its author is an entomologist of the attainments of Dr. Tillyard.

Insects of Australia and New Zealand is written primarily as a textbook, and for this it seems admirably adapted. The detailed discussion of the morphology, life history, distribution and fossil history of each group, as well as of classification, cannot fail to give the student an excellent grounding in the general subject. The book is not intended to be an economic entomology, yet the economic entomologist and quarantine officer will find the discussions under Economics, Distribution, and Census both interesting and valuable.

The book is full of things of interest. Among these may be mentioned the absence of native plant lice (Aphididæ) from Australia; the occurrence in Australia and New Zealand of 70 species of thrips, 130 species of mealybugs, and 281 species of ladybirds. To one accustomed to seeing thousands of Eucalyptus trees without a single insect attacking them, the mention of numerous serious pests of these trees in Australia is cause for congratulation that these trees were introduced in the seed stage rather than as nursery stock. It is a wonderful illustration of what quarantine can accomplish if we can do in practice that which is theoretically necessary to keep pests out.

There are 1251 figures in the book, many of them in color. A brief but useful bibliography is appended to each group; there is a glossary of terms and a chapter on the collection and preservation of insects. There is also a chapter on the "Fossil Record and Origin of the Australian and New Zealand Insect Faunas" which Dr. Tillyard is remarkably well qualified to write.

EUPARAGIA SCUTELLARIS CRESSON, A MASARID WASP THAT STORES ITS CELLS WITH THE YOUNG OF A CURCULIONID BEETLE

BY FRANCIS X. WILLIAMS
Hawaiian Sugar Planters' Association
Experiment Station
Honolulu

The Masaridæ are a small family of solitary wasps, often of rare occurrence, that are related to the Eumenidæ (Potter Wasps, etc.) but whose antennæ are swollen more or less club-like at the tip and whose wings are not or imperfectly folded longitudinally when at rest. They have a wide geographical distribution, but appear to favor regions with warm dry summers. Little is known of their life history; they sometimes nest in the ground or else attach their clay cells to stones, twigs, etc., and supply their young with pollen and honey, or in the case of *Euparagia scutellaris,* with the young of a Curculionid beetle.

Late in July, 1925, while collecting Hymenoptera in the vicinity of Lake Tahoe, in the Sierra Nevada Mountains, California, the writer found two small colonies of the little *Euparagia scutellaris.* This wasp is about 7 millimeters long and is black with some pale yellow markings, and as Bradley, in his excellent "Taxonomy of the Masarid Wasps" (University of California, Pub. Tech. Bull., Entomology, I, 1922), remarks, is "Stout, form somewhat *Oxybelus*-like," *Oxybelus* being a small fly-catching Sphecoid wasp. It was nesting in the hard ground, in one case on the slope of an exposed gravelly pit; the burrows which were not deep, terminating in one or more cells, and were surmounted by a delicate and slender curved tube of clay. The cells, in some cases contained a wasp grub and were packed with semi-paralyzed footless, dirty whitish beetle grubs, and an *Euparagia* carrying one such grub was captured and preserved. A specimen of this *Euparagia* provender was sent to Dr. A. G. Böving of the United States National Museum, for identification. Dr. Böving has kindly written as follows: . . . "The dried-up specimen sent me for identification is a pupa still covered with the larval skin. . . . The parts examined

under high power show that the larva is a small Curculionid larva. The pupa extracted was submitted to Mr. H. S. Barber, coleopterist in the National Museum. Without giving a definite determination he suggested that it might be a species of *Ceuthorrhynchus* and the larval characters agree with those given for *Ceuthorrhynchus* by Dr. P. V. Isaac in "The Annals of Applied Biology, Vol. X, 1923."

The habit of *Euparagia* of making a clay tube over the nest-hole is common to some *Odynerus* and also to the European Masarid, *Ceramius lusitanicus* Klug., and to others. The carnivorous habit is perhaps not unique for the family, but seems to be recorded here for the first time among the Masaridæ.

Species of the genus *Pseudomasaris* are sometimes abundant in the Sierra Nevada Mountains. They construct clay cells, and from the regularity with which some of these wasps visit certain flowers one can hardly escape the inference that they are nectar or pollen gatherers. C. H. Hicks has shown that the large *Pseudomasaris vespoides* (Cresson) is a pollen-provisioning wasp (Can. Ent., LIX, pp. 75-79, 1927).

ON THE IDENTITY OF MICRA RECTA GN. (LEPID., PHALÆNIDÆ)

BY WILLIAM BARNES AND F. H. BENJAMIN
Decatur, Illinois

The type of this name, described 1852, Guenée, Spec. Gén., VI, Noct., II, 245, as questionably from Sierra Leone was placed in the Guenée collection with other examples of *Eublemma obliqualis* (Fabr.) received by Guenée from North America.

Guenée placed on the pin of the type a label saying that his generic reference and the locality given for the specimen were incorrect. His label also states, "C' est le No. 4 qui est l' original de ma description." There can be little doubt but that the specimen is the true type. It is in poor condition, lacking head and abdomen, but the wings are in good condition, and agree perfectly with a long series of *obliqualis* in the Barnes collection. The name *recta* should be added to North American lists as a synonym of *obliqualis*.

The Funkhouser Catalogue of Membracidæ[1]

No class of books is of more value to the working entomologist than catalogues of the various groups and we all will most heartily welcome this first fascicle of this series. The 1935 species listed in this catalogue are divided into 289 genera and these into six subfamilies of which the Centrotinæ, comprising nearly one-half of the known species of the family, are largely Indo-Australian and Ethiopian in distribution; the other five subfamilies are mainly American, largely neotropical. About 200 species are known from America, north of Mexico.

Unfortunately the value of this catalogue is seriously marred by the alphabetical arrangement of the genera and species, robbing it of much of its value in taxonomic work, and leaving it but little more than an index to the literature of the family. As such an index it will, of course, be a great help to students, but we cannot but feel that the little time required to make the arrangement systematic would have immensely enhanced the value of the catalogue to those trying to determine their material. We must also object most strenuously to the abandonment of the subspecies, the value of which is only beginning to be properly appreciated by our workers. These are serious defects which it is to be hoped will not be repeated in future fascicles. Dr. Funkhouser's work on this catalogue has been thoroughly well done, and the omissions, if any, must be very few. The defects above mentioned can be corrected by the publication later of a check list arranged along scientific lines, until then we will all use this catalogue and be thankful to the author for so greatly lightening our labors.—E. P. Van Duzee.

In Revista do Museu Paulista (XV, pp. 205-384, 4 pl., 4 pp., errata), Dr. C. H. T. Townsend has given us a synopsis of the Muscoid genera of humid tropical America. The 605 dichotomies in the key include about 224 new generic names for which the genotypes are named. Following are descriptions of 231 new species. The paper is entirely in Portuguese.

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[1] General Catalogue of the Hemiptera. Fascicle I, Membracidæ by W. D. Funkhouser, Ph. D., Smith College, 1927.

TWO NEW TYPES OF DESERT BEES

BY T. D. A. COCKERELL

Last March Mr. P. H. Timberlake went out into the Colorado Desert and brought back a series of remarkable new bees, including the species now described, one a new genus, the other a new subgenus or genus according to the point of view. California is indeed full of wonders.

Xeralictus Cockerell, new genus

Male. Head rather large, subquadrate; cheeks moderate, hairy; ocelli moderate, in a curved line, remote from eyes; a more or less remote elevation runs from middle of ocellus to end of clypeus, but on front and clypeus a groove runs down the middle of it; eyes rather small, narrow; lower border of clypeus simple, not excavated or toothed; labrum broad, transverse, with a large broad outstanding basal nodule; malar space short but evident, concave, shining; mandibles large and long, the apical two-thirds not in line with the base but bent downward, producing an obtuse angle on upper margin, apex with a sharp tooth, the inner tooth indicated by a broad rectangular lamina; on inner side below the obtuse angle mentioned is a broad shining basin bounded by a steep carina below, so that the mandibles may be described as trigonal; tongue much shorter than mandibles, slender, hairy; maxillary palpi long and slender, apparently five-jointed, the joints slender and subequal, but there are really six joints, the shorter basal joint being visible on closer inspection; labial palpi four-jointed, the first joint about as long as the next two together, apical joint slender, about as long as the one before; antennæ long and slender, scape moderate, third joint conspicuously longer than fourth; middle of flagellum submoniliform; prothorax not angulate anteriorly; mesothorax and scutellum smooth, little punctured; scutellum unusually long, not bigibbous; area of metathorax short, dull, without ridges or plicæ; tegulæ not punctured; stigma lanceolate; lower division of basal nervure strongly arched, meeting nervulus a little on outer side, the nervulus not in a line with it; three cubital cells, first acutely angled at base and apex and about as long as third; second moderate, narrower above than below, the lower basal corner produced; third narrowed about one-half above; marginal cell ending on costa, not very acutely; first recurrent nervure meeting second intercubitus; second recurrent reaching third cubital cell near the beginning of its last third; legs ordinary; spur of middle tibiæ strongly ciliate; claws bifid at end; pulvillæ large; abdomen dull, the apical depressions of segments conspicuous; a broad and large, apically truncate, somewhat trilobed, lamina projecting at apex of fourth ventral segment; genitalia elongated; stipites long, slender apically, broadened basally, subangulate near middle above; sagittæ long, turned inward at apex, suggesting the forceps of an earwig; seventh ventral plate with slender curved

processes, well separated at base and strongly diverging; wings of seventh ventral broad, not lobed, recalling the wings of a maple seed; eighth ventral plate with a long median entire rod, truncate at apex, and hardly chitinized rather short transverse lobes.

Xeralictus timberlakei Cockerell, n. sp.

Length about 12.5 mm.; black, rather robust; antennæ with scape and second joint black, joints three to five red above and below, rest of flagellum black, obscure red below; clypeus and supraclypeal area dullish, without evident punctures; eyes black, inner orbits narrowly shining; front dull with minute weak punctures; front, middle of vertex, occiput and cheeks with rather long white hair; mesothorax shining, very finely and not densely punctured, media and parapsidal grooves distinct, anterior margin obtusely produced in middle; prothorax, tubercles, pleuræ, sides of scutellum, postscutellum and metathorax with conspicuous silvery-white hair, at sides of metathorax conspicuously plumose; scutellum with hardly any punctures except at extreme sides; tegulæ rufotestaceous; wings grayish hyaline, stigma and nervures piceous; legs black with appressed white hair pale yellow on inner side of basitarsi; spurs ferruginous; abdomen dullish, excessively minutely punctured, with very little hair but an even white fringe at extreme base of second segment.

Salt Creek, California, at flowers of *Nuttallia involucrata* (Family Loasaceæ), March 20, 1927 (Timberlake).

A member of the Halictine series, differing from the Siberian Acanthalictus by the narrow stigma, long third cubital cell, and the character of the mandibles and base of the metathorax. The shape of the third cubital cell is as in Lucasiellus, but the bee is otherwise quite different. The long third cubital cell at once separates the genus from the Ceylonese genus Sudila, which has long curved mandibles. The clypeus of Sudila is also quite different.

Andrena (Megandrena) Cockerell, n. subg.

Male. Rather large very hairy bees, with very pale yellow clypeus and lateral face-marks; head large and broad; face very broad, eyes diverging below; labrum transverse, densely hairy; mandibles long, rather slender, falciform, the inner tooth represented by an obtuse angle not far from apex; lower side of mandibles with a long fringe of white hair; malar space very short; tongue short, narrow, not nearly as long as the mandibles; maxillary palpi with six short subequal joints, rather exceeding blade of maxilla which is broad, dark and densely chitinized; labial palpi four-jointed, the first joint curved, not as long as the other three together, the latter being subequal; ocelli fairly large, in a curve, remote from eyes; antennæ only mod-

erately long, third joint elongated, fully as long as next two combined; mesothorax and scutellum dullish, feebly sculptured; area of metathorax dull, without plicæ; tegulæ very hairy; wings with stigma very small and narrow; lower section of basal nervure straight except at lower end where it is gently curved, ending just apicad of the oblique nervulus; marginal cell rather narrow, ending obtusely on costa; three cubital cells, the first a little longer than the third but second very broad, narrower above but still as long as third on marginal nervure; first recurrent nervure joining second cubital cell at about the beginning of its last fourth; second reaching third cubital cell not very far beyond middle, the third cubital cell being much elongated, the outer intercubitus bulging outwardly at end; legs ordinary with long abundant hair; claws bifid; pulvilli large; abdomen with broad entire hair-bands; venter densely hairy; genitalia thick and massive, the lateral pieces consisting of broad rounded convex lobes, from the lower side of each coming a long slender process directed apicad and having a large, broadly clavate apex; sagittæ much shorter, but the long slender uncus projecting far beyond; seventh ventral plate with outwardly directed pointed lobes, beset with a very long fringe of hair, and with broad thinly chitinized wings; eighth ventral plate with a broad heavily chitinized process, densely hairy at end, the lateral processes poorly developed.

Andrena (Megandrena) enceliæ Cockerell, n. sp.

Length, 15-16 mm.; black, densely covered with long white hair, forming dense entire bands on abdominal segments beyond the first; clypeus very pale yellow with two black spots; lateral face-marks pale yellow, filling the broad spaces between the clypeus and eye, except a black stripe going halfway down at sides of clypeus; mandibles black, their inner angle slightly reddened; eyes black; antennæ entirely black; mesothorax slightly shining, very finely and inconspicuously punctured, covered with long hair; tegulæ black, hairy; wings clear hyaline, apical margin faintly clouded, stigma and nervures black; legs black with white hair, that on inner side of basitarsi bright orange; spurs red; abdomen dullish, very finely punctured, first segment covered with long white hair, the others with white hair-bands, the hair at apex slightly yellowish.

Near **Salt Creek, California,** at flowers of *Encelia farinosa* (one of the Compositæ), March 19, 1927 (Timberlake). Two males.

Related to Opandrena (type *cressonii* Robertson), but differing by the small stigma, very broad cubital cell with recurrent nervure subapical, and shorter middle joints of maxillary palpi. Compared with Pterandrena (type *accepta* Viereck), there is closer resemblance in the small stigma but the second cubital cell is quite different. In Viereck's table (1904) of the Opan-

drena and Pterandrena of the northwest it runs next to the much smaller *A. trevoris* Ckll. except that the abdomen is distinctly though finely punctured. *A. trevoris* is about 9 mm. long. This must, I think, be considered a distinct subgeneric type, or genus if we follow the method of Robertson. The third antennal joint, seen from in front, is about 560 microns long, the following two together being 480. It is impossible to find any closer affinity with existing forms and we have another of the curious isolated types of recent bees.

TWO INTERESTING BEETLES FROM CARLSBAD CAVERN

BY WARWICK BENEDICT
Lawrence, Kansas

In July last I had the pleasure of accompanying an entomological expedition from the Kansas State University to the Texas Panhandle, southeastern New Mexico, and the so-called Big Bend section of southern Texas. Collecting was quite good in several orders, particularly in the Coleoptera, to which I gave my undivided attention, laying up pleasurable work for the winter months.

Upon returning, the first material examined was a series of four species taken while exploring the "Bat Cave," a section not open to the public but connected with the Carlsbad Cavern of New Mexico, our latest national monument. Two of these species proved to be rather common representatives of the genus Trox, but the others apparently constitute an undescribed species and a subspecies. The most interesting of the two is a Carabid which, on the advice of Mr. H. C. Fall, is referred to the genus Rhadine where it undoubtedly belongs, although in habitus it bears a greater resemblance to the drawing of *Comstockia subterranea* Van Dyke (Jour. N. Y. Ent. Soc., XXVI, 1918, p. 179), than to any described species of the former genus.

Rhadine longicollis Benedict, new species

Form slender, elongate; head and prothorax rufo-piceous; elytra and femora red-brown with tibiæ and tarsi but little lighter, antennæ testaceous; head rhomboidal, elongate and narrowed behind with subglobular condyle, subequal in width to prothorax, the latter being just perceptibly wider; front tumescent and smooth medially, flat-

tened toward eyes and longitudinally rugulose; antennæ slightly more than one-half the length of the body, the third joint longer than first and second combined and one-fifth longer than fourth; pubescence beginning on fourth joint; eyes rather small and not prominent; posterior superciliary puncture about midway between eye and condyle; mentum emarginate, the depth equal to one-third the breadth; tooth well developed with emarginate apex; prothorax elongate, nearly twice as long as wide, widest at middle and evenly arcuate to slightly emarginate apex but visibly sinuate at basal fourth; base somewhat wider than apex and more strongly emarginate with well-rounded angles; anterior angles blunt; lateral margins finely and acutely reflexed; marginal setæ at about apical third, no setæ at posterior angles; disc moderately convex, impunctate and polished although faintly alutaceous, increasingly so basally; median impressed line strong and extending nearly to base and apex; basal fovæ linear but broad, shallow, and inconspicuous; prosternum in front of coxæ compressed and acute at summit; elytra elliptical, rather strongly convex, twice as wide as prothorax and nearly twice as long as wide, broadest at middle, the sides regularly arcuate with scarcely a trace of apical sinus; densely alutaceous, opaque, striæ faintly and intermittently impressed; sparsely, obsoletely, and irregularly punctulate, intervals flat and impunctate; margins finely reflexed from base to apex; apices separately rounded, but very minutely dehiscent and not at all prolonged; three dorsal punctures on third interval; under surface rufo-piceous, lighter toward sides, moderately shining but alutaceous throughout; legs long and slender as usual in this section; length 10.5 mm., width 3.2 mm.

Of the described species, *longicollis* seems to be nearest to *myrmecodes* Horn and from this it differs widely in the posteriorly more prolonged head, more elongate prothorax with rounded basal angles, compressed prosternum and strongly convex elytra with subobsolete sinus. In the good series at hand there seems to be no noteworthy variation other than in size. Length, 9-11 mm.; width, 2.8-3.4 mm. The color differences are slight. In a few examples the head, thorax, and abdomen are scarcely darker than the elytra, very possibly due to immaturity.

Holotype male and allotype female to be deposited in University of Kansas collection. Paratypes in my own collection; also paratypes taken by R. H. Beamer, Philip A. Readio, and Lyle A. Stephenson in the University of Kansas collection.

The subspecies under consideration belongs near *Embaphion contractum* Blais. and while apparently not entitled to specific rank seems worthy of a varietal name, and is dedicated to

Dr. F. E. Blaisdell, who has done so much to clarify the study of the Eleodiini and to whom I am indebted for many favors.

Embaphion contractum blaisdelli Benedict, n. var.

As a description would be largely a copy of that given for *contractum* (Bull. No. 63, U. S. N. M., 1909, p. 460), it seems necessary only to set forth the salient points of difference. The sides of pronotum, instead of being constricted at basal seventh or eighth, as in *contractum,* are constricted at the anterior edge of basal bead, the true basal angles being thus only minutely exposed. In the long series at hand there is but slight variation in this feature, there being practically no tendency to deviate toward *contractum* or *planum.* The elytra in *contractum* are described as subasperately punctate, and in the four examples of that species available for study the punctuation is, if anything, more strongly asperate than as described, while the elytra in *blaisdelli* are simply punctate, there being in the most strongly sculptured specimens only a few scattered punctures minutely asperate. In size *blaisdelli* runs somewhat smaller than *contractum,* the extremes of the former being, length 13-17 mm., width 5.5-7.3 mm., while the smallest of the latter species before me is 17.5 mm. long and 7.3 mm. wide. The describer's examples, all females, were considerably larger, the extremes being given as, length 18-21.5 mm., width 9-11 mm.

The above variety is of interest as a link between *contractum* and *planum,* of whose close relationship Dr. Blaisdell expressed his conviction in the work above cited.

Holotype male and allotype female to be deposited in University of Kansas collection. Paratypes in my own collection and in that of the University of Kansas.

It is unlikely that any of the species found in the cave have existed there for any extended period and, with the possible exception of the Carabid, it seems probable that all have been introduced since shafts were sunk through the roof of the cave to facilitate the removal of guano. This I understand was less than twenty-five years ago. However, should they continue to propagate in that environment I feel that I should like to return in a few thousand years and see what structural changes time has wrought in their descendants.

ON THE STANDING OF GENUS TIBICEN LATR.

BY E. P. VAN DUZEE

In a recent paper [1] Dr. Horvath maintains that all the generic names used by Latreille in his *Familles naturelles du Règne Animal (1825)* are vernacular French names and are therefore unavailable for use in scientific nomenclature. Unfortunately I am absolutely unable to accept this view. In 1914, when preparing the paper [2] in which I corrected the generic assignments then used by many European hemipterists for certain of their cicadas, I went over this phase of the matter very carefully and concluded that we had no alternative but to accept as valid Latin names, all names in Latreille's 1825 work that are given in correct Latin form. In reaching this conclusion I consulted with several students who were thoroughly competent to pass on such a question of nomenclature. Dr. Horvath now decides that in this work Latreille uses the Latin word Tibicen in a *French sense,* and on the strength of this establishes a new genus Lyrastes for *Cicada plebeja* of Scopoli and thus changes the generic name of nearly all of the large and well-known cicadas of the eastern United States.

I certainly have no objection to making any *necessary* correction in the nomenclature of our insects, and think it should be done at the earliest possible date as a means of stabilizing nomenclature, but I can see no occasion for making repeated changes on a fine point of interpretation that has no connection with the International Rules, and to which a large portion of our students certainly will never agree. It is the constant recurrence of such arbitrary changes that is driving our entomologists toward *nomina conservenda* which eventually would break down our entire system of nomenclature. I maintain that no change should be made unless absolutely necessary to make our nomenclature conform to the International Rules. As stated, the case of Tibicen has nothing to do with these Rules. The logical thing to do is to admit that an author may use both Latin and vernacular names in the same book, and to retain Tibicen for the cicadas related to *plebeja.*

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1 Les Noms Génériques de nos Trois Grandes Cigales Indigènes. Ann. Mus. Natl. Hung., XXIII, p. 93, 1926.

2 Can. Ent., XXVIII, p. 387.

THE PAN-PACIFIC ENTOMOLOGIST
Published quarterly by the Pacific Coast Entomological Society
in co-operation with the California Academy of Sciences
E. P. Van Duzee, Editor S. B. Freeborn, Ph.D., Treasurer

A number of our entomologists have been in the field again this summer. Dr. E. C. Van Dyke spent about eight weeks collecting in Oregon, eastern Washington, and northern Idaho. Mr. J. O. Martin made a trip to the Big Bend country of Texas in April and May and Mr. E. P. Van Duzee collected about two weeks around Truckee, California, and another week or two about Reno and Nixon at the southern end of Pyramid Lake, Nevada. These three expeditions will add about 20,000 insects to the collections of the California Academy of Sciences.

Mr. C. L. Fox left on August 9 for England where he will remain for a time with his brother in London. His many friends here hope he may soon return with his health fully restored.

Dr. W. J. Holland of the Carnegie Museum was a most welcome visitor at the Department of Entomology of the California Academy of Sciences. Among other visitors to this department of the Academy during the summer may be mentioned Dr. J. M. Aldrich, Mr. A. C. Baker, Mr. J. A. Hyslop and Mr. and Mrs. S. F. Blake of Washington, D. C.; Mr. George P. Engelhardt of Brooklyn, Prof. Paul P. Lawson of Lawrence, Kansas, and Dr. and Mrs. E. G. S. Titus of Salt Lake City.

We would call attention to Part V of the Guide to the Insects of Connecticut, on the Odonata or Dragon Flies of Connecticut, by Dr. Philip Garman. This Guide will serve as an excellent handbook to the dragon flies of the eastern United States. The The monographic character of these Guides is making them indispensable to our entomologists.

The 1926 Report of the Provincial Museum at Victoria, B. C., like its predecessors, contains entomological papers of much value. This issue has a report on entomology devoted to the insect fauna of the Garibaldi Park District, with one plate of Noctuids, and a paper by G. A. Hardy on the Buprestidæ of Vancouver Island, with two plates.